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THE SCOPE AND FUTURE OF PHYSICAL MEDICINE AND REHABILITATION

Chairman's Address

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It is with a feeling of great pride that we physicians who have devoted our interest to the combined specialty of physical medicine and rehabilitation gather here for the first meetings of the new section of the American Medical Association which deals with this field. Physical medicine has been defined as the employment of the physical and other effective diagnostic and therapeutic properties of light, heat, cold, water, electricity, massage, manipulation, exercise and mechanical devices for diagnosis, for research and for physical and occupational therapy and physical rehabilitation. Rehabilitation has been defined as the employment of physical medicine, technics of psychosocial adjustment and vocational retraining for the purpose of aiding the patient to achieve the maximal function and adjustment and of preparing him physically, mentally, socially and vocationally for the fullest possible life compatible with his abilities and disabilities.

As the first Chairman of the new Section on Physical Medicine and Rehabilitation, I am not unmindful of the responsibilities which are mine in attempting to sound the keynote. Stimulated by two wars, the combined specialty of physical medicine and rehabilitation has made rapid progress. With the inauguration of this section, a new medical discipline has achieved full stature. The road which has led to the final goal of complete recognition of this specialty has been long and rocky, and those who have followed it have frequently been beset with adversities.

HISTORICAL PARALLELS

It occurred to me that other medical specialties might have encountered similar difficulties in their very beginnings, so I decided to browse through the "History of the American Medical Association" and to study some of the chairmen's addresses given at the inaugural meetings of other sections of the Association. It was indeed interesting to find that many of the well established medical specialties had similar problems and that several specialties which are now especially well established had experienced an equally difficult struggle for recognition.

From the Section on Physical Medicine, Mayo Clinic.

Read before the Section on Physical Medicine and Rehabilitation at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950.

The sections of the American Medical Association were organized in 1859.[1] At the first meetings of the sections, it was not customary for the Chairman to give a formal address such as this.[2] But in 1873, in accordance with a resolution offered by the great Philadelphia surgeon Dr. Samuel D. Gross, the following statement was adopted: "The Chairmen of the several sections shall prepare and read, in the general sessions of the Association, papers on the advances and discoveries of the past year in the branches of science included in their respective sections; the reading of such papers not to occupy longer than forty minutes for each."[3]

In its early days, this great American Medical Association itself had misfortunes and was attacked by many physicians. This led Dr. Nathan S. Davis of Chicago to comment in his address before the Section on Practical Medicine, Materia Medica and Physiology in 1874:

> Many have asserted that the American Medical Association is a failure, and many are apparently looking anxiously for its early dissolution. But it has appeared to me that it has just reached the stage of development and the degree of perfection in its organization necessary for entering upon a career of prosperity and usefulness hitherto unknown in the history of scientific and professional organizations.[4]

I am emboldened to paraphrase Dr. Davis' prediction and to suggest humbly that physical medicine and rehabilitation have reached the stage of development and the degree of perfection necessary for entering on a career of advancement and service hitherto not anticipated.

We cannot hope to achieve such success, however, unless we redouble our efforts to bring about the development of sound practice, adequate teaching and meticulous laboratory and clinical research. The mere establishment of this new section does not mean that the battle is won and that we can rest on our laurels. Sections have been formed and dissolved before in the Association, and we must remember that we can hope to continue only if we grow as fast or faster than the other rapidly developing sections of the Association. A note of warning can be sounded to indicate what might happen to this section if we do not continue to push forward. I found the following note concerning a section which no longer exists, the name of which I shall not mention: "The Section met on Tuesday at 2:30 p. m. There being no members present except the Chairman

1. Fishbein, M.: The Scientific Sections of the American Medical Association, in A History of the American Medical Association 1847 to 1947, Philadelphia, W. B. Saunders Company, 1947, pp. 1092-1098.
2. Minutes of the Thirteenth Annual Meeting of the American Medical Association, Tr. A. M. A. **13**: 9-44, 1860.
3. Minutes of the Twenty-Fourth Annual Meeting of the American Medical Association, Tr. A. M. A. **24**: 9-61, 1873.
4. Davis, N. S.: Annual Address on Practical Medicine, Tr. A. M. A. **25**: 108-120, 1874.

and the Secretary, the Section was adjourned until Thursday. On Thursday the Section met at 2:30 p. m., the Chairman, Secretary and two other members being present. The Secretary's paper was published but the Chairman's paper was not furnished to the Committee of Publication." It is easy to see why this section is no longer in existence. We must make certain that our section never suffers a similar fate.

Not only must we continue to attend these meetings in order to remain strong, but we must strive to be accurate in our presentation of scientific facts and cautious in our predictions concerning new theories. Hindsight is better than foresight, but let us hope that none of us will draw conclusions too rapidly or will condemn new theories too hastily, lest we find ourselves in the situation of the Chairman of the Section on Practice of Medicine, Materia Medica and Physiology for the year 1878. This Chairman gave a brief summary of the researches made during 1877, beginning with the "germ theory of disease," and then he commented: "This theory is a very seductive one, and although investigations in order to establish it have been very extensively made, and the statements of some observers are strongly in its favor, yet facts do not warrant us in accepting it." [5]

RELATION TO OTHER SPECIALTIES

As our new specialty develops and as we become established in our proper position in relation to the other recognized specialties, we are certain to be involved in some jurisdictional disputes, and some of our less generous colleagues are likely to look on us as annoying competitors rather than as willing collaborators. To such colleagues I should like to point out that the whole field of medicine is growing so rapidly that there is room for us all and that, in applying our special knowledge to the care of patients, we will not encroach on their work but will supplement and frequently strengthen it. In the inevitable march of science, an increasing amount of specialization must occur, and more and more collaboration between physicians necessarily will develop.

Because of his qualifications and training, the physiatrist is especially well qualified to collaborate with and to supplement the work of certain other specialists. The equipment of the physiatrist is so complex and his training so extensive that the specialist in these other fields cannot expect to absorb this specialty and incorporate it with his own any more easily than he could absorb and incorporate all the complicated technics of the roentgenologist or the clinical pathologist. There is no more justification for specialists in other fields of medicine to utilize the services of the technical workers in physical medicine without consulting the physiatrist than there would be for their utilizing the services of the technical workers in the departments of roentgenology and the clinical laboratories without consulting the roentgenologist or the clinical pathologist.

There are, for example, two specialties already well established for which the physiatrist is especially well qualified to provide supplementary services. I refer to the fields of neurology and psychiatry and of orthopedics. Fortunately, most of our colleagues in these two specialties have been generous in accepting our supplementary services and in realizing that the physiatrist can help them without in any way encroaching on their specialties. Unfortunately, there are a few physicians in these specialties who still look on us as annoying competitors. To these few I should like to point out that their specialties have gone through the same stages of development as ours. For example, in 1900, when Dr. Hugh T. Patrick gave his Chairman's address before the Section on Nervous and Mental Diseases of this Association, he said: "There can be no question as to the standing of neurology and psychiatry—speaking of them combined as constituting a single branch of medicine. This specialty is the legitimate child of increased medical knowledge and the inevitable differentiation involved in evolution." [6] He said that many physicians think that neurology has no part in everyday practice and teaching. He added that, since the neurologist knows the ignorance of the physician, "is it not his duty . . . to see to it that his specialty is accorded proper recognition in the practice and in the schools?" [6] We physiatrists desire to point out that, as in 1900 in the case of neurology and psychiatry, so in 1950 there can be no question as to the standing of the combined specialties of physical medicine and rehabilitation.

To the few orthopedists who look on the physiatrist as a competitor rather than as a collaborator, I should like to quote from the Chairman's address at the opening meeting in 1914 of the new Section on Orthopedics of the Association. The Chairman, Dr. Leonard W. Ely, said: "Specialties spring up in answer to a demand for concentration, for no one man can cover the entire field. All knowledge that the student unearths becomes, not his property nor the property of those associated with him in a similar line of work, but the property of the entire medical profession." [7] Dr. Ely added:

> Orthopedic surgery was born to a strenuous life, and has held its borders, never sharply defined, by constant struggle. Its right to the name of a specialty, as you know, is still disputed. It is not recognized generally in medical schools as worthy of a faculty chair, and in many large communities it is not represented exclusively. Its pioneers devoted themselves largely to perfection of mechanical devices, and to accumulation of clinical data, but this knowledge has been appropriated quite rightly by our confrères, who are capable of applying much of it reasonably well with the aid of a skilled mechanic. We have no exclusive title to it. It does not "belong" to us.

As we specialists in physical medicine and rehabilitation struggle for our first toe hold as the youngest and yet the most determined of the medical specialties, it is my sincere hope, in fact, my devout prayer, that our colleagues in these two specialties in which we can be of particular assistance, as well as those in the many other specialties which we can assist, will realize that they too have experienced similar beginnings and will look back on their own early years, realize the similarities between their development of former years and our development of the present and lend a friendly hand. Even though it is said that we thrive in adversity, the joy of working in the medical profession comes from the mutual trust and understanding which exists between physicians. It is to be hoped that the specialists in physical medicine and rehabilitation will always merit the trust and understanding of their colleagues. If they can, it will be possible to make enormous strides forward in the total rehabilitation of patients who are chronically ill or seriously disabled.

5. Loomis, A. L.: Address in Practice of Medicine, Materia Medica and Physiology, Tr. A. M. A. **29**: 119-137, 1878.

6. Patrick, H. T.: Chairman's Address: Neurology and Medical Jurisprudence, J. A. M. A. **35**: 202-204 (July 28) 1900.

7. Ely, L. W.: Orthopedic Surgery: Its Scope and Its Future, J. A. M. A. **63**: 2265-2266 (Dec. 26) 1914.

Ralph Ghormley has said: "As knowledge and facts gather weight and importance, new specialties will arise. . . . Let me emphasize my belief that, while specialties develop and specialists become more expert in their chosen fields, the need for cooperative effort by specialists in treating many individuals becomes more evident." [8] I should like to support Dr. Ghormley's view vigorously and to solicit as well as to offer such cooperative efforts in the association of physical medicine and rehabilitation with other specialties.

Despite the fact that every physician registered in this section has graduated from an approved medical school and despite the fact that many of them hold teaching positions in outstanding universities or have clinical appointments in the finest of the governmental and civilian hospitals, I am sure that every one of you has heard frequent insinuations that physical medicine and rehabilitation are closely akin to quackery. Although our own consciences are clear in this respect, it is comforting to find, when one reviews the literature, that our specialty is not unique in this regard. Dr. Dwight H. Murray in his Chairman's address before the initial meeting of the Section on Gastro-Enterology and Proctology, in 1917, said:

> The mutations of time have changed the status and practice of gastro-enterology and proctology from a condition of well-merited criticism to one of honor and distinction, and it is for this reason that the American Medical Association established a section recognizing these two fields of work. . . . There is no one thing that at a stroke has done more to remove these fields from the hands of quacks, commercialists and the reproach of the past than the establishment of this section.[9]

Likewise, Dr. Ames A. Dickson, in an address before the Section on Orthopedics, in describing orthopedics prior to World War I, said:

> The orthopedists had been looked on with disdain by other members of the medical profession here and were called the "strap and buckle" surgeons, while Sir Robert Jones had practically no status at all among certain of his confrères in England. He was derisively called a "bonesetter" despite his great surgical skill and the outstanding results he had achieved in caring for the cripples of Liverpool. . . . It is difficult to realize that such an attitude could have existed so recently toward the practice of orthopedics.[10]

I am confident that within a few years it will be difficult to realize that such an attitude as now exists in some quarters concerning physical medicine and rehabilitation could really have existed and that just as the fields of gastroenterology and proctology and of orthopedics have gone far beyond any possibility of being accused of quackery, so our own specialty will have shaken off such unjustifiable accusations.

Physical medicine is a particularly broad specialty, and its scope is such that it can provide supplementary services for the specialist in internal medicine, surgery, obstetrics and gynecology, ophthalmology, laryngology, otology, rhinology, pediatrics, dermatology, syphilology and urology, as well as for the specialties previously mentioned. Physical medicine can really be thought of as applied biophysics, and much of medical rehabilitation requires physical methods for restoration of function, strengthening muscles, mobilizing joints and overcoming deformities. Specialists in this field not only apply various types of radiation (other than gamma rays and roentgen rays), but they employ various physical agents for diagnosis and therapy, utilize mechanical devices and therapeutic exercise, hydrotherapy, cryotherapy, thermotherapy, massage, manipulation, occupational therapy and physical rehabilitation.

8. Ghormley, R. K.: Specialization in Medicine: What Is Orthopædic Surgery? J. Bone & Joint Surg. **31-A:** 459-463 (July) 1949.
9. Murray, D. H.: Section on Gastro-Enterology and Proctology: Retrospect and Prospect, J. A. M. A. **69:** 1481-1482 (Nov. 3) 1917.
10. Dickson, A. A.: Chairman's Address: Orthopedic Surgery Between Two Wars, J. A. M. A. **120:** 413-416 (Oct. 10) 1942.

RECENT ADVANCES

Because since 1873 the Chairman of a Section has had the task of reviewing the more important advances in the specialty which have occurred during the year, I shall mention a few of the more significant advances, but only briefly, since, as has been pointed out by the chairmen of other sections, the abundance of current literature and the rapid multiplication of textbooks renders such résumés less necessary and of less practical value than was formerly the case. The year saw the final successful amalgamation of the fields of physical medicine and rehabilitation. Before 1949, the Council on Physical Medicine of the American Medical Association had determined that occupational therapy should be included within the field of physical medicine. Then, in 1949, the Council changed its name to the Council on Physical Medicine and Rehabilitation and extended its interest to cover physical medicine, occupational therapy and rehabilitation. Next, in May 1949, the American Board of Physical Medicine changed its name to the American Board of Physical Medicine and Rehabilitation and extended its requirements accordingly. Finally, in June 1949, the House of Delegates of the American Medical Association voted to establish within the organization of the Association the new Section on Physical Medicine and Rehabilitation. This was the final step in recognition of this new combined field of medical endeavor, which now enjoys the same status as do other recognized medical specialties.

One of the best indexes of the sound growth of any medical specialty is the increase in articles on laboratory and clinical research in that field. The many articles which appeared in the last year concerning the physiological aspects of, and clinical research in, physical medicine and rehabilitation give encouraging proof of the sound development of our specialty. A surprisingly large number of articles were published during the year dealing with the development of ingenious and highly acceptable devices which will facilitate the physical treatment and rehabilitation of the sick and disabled. It has been especially pleasing to note a continuing increase in articles dealing with various phases of therapeutic exercise. This field, which was previously neglected, is one of the keystones of modern physical medicine and merits still further development.

In the field of medical electricity, the growing interest in electrodiagnostic procedures (especially electromyography) is noteworthy, as is the increase in articles concerning microwave diathermy.

During the past year there has been a growing interest in ultrasonics as applied to medicine, and, although it is obvious that "ultrasonotherapy" is being exploited in certain European countries, there are certain promising characteristics of ultrasonic radiation which require careful laboratory investigation. It is my opinion that the literature so far available does not give any clearcut evidence that ultrasonic therapy is indicated in any disease. Nevertheless, because certain studies indicate that it may become a useful medical diagnostic tool and because other studies indicate that it may have unusual effects on peripheral nerves and on bone marrow, further laboratory studies of these

effects are highly desirable. At present, indiscriminate clinical application of ultrasonic therapy is, in my opinion, not only unwarranted but dangerous.

A review of the literature for the past year indicates the growing importance of the neurological and psychiatric aspects of physical medicine and rehabilitation as well as the increasing employment of physical medicine and rehabilitation in the management of paraplegia, cerebral palsy, amputations and tuberculosis. Finally, a review of the past year's literature indicates the increasing use of physical medicine and rehabilitation in the fields of geriatrics, pediatrics, orthopedics and rheumatology.

INTERNATIONAL FEDERATION OF PHYSICAL MEDICINE

In closing, I should like to point out that, with the establishment of this new section in the American Medical Association, physical medicine and rehabilitation has reached full stature not only in America but internationally. Recently I returned from a trip to Europe, where, on May 10, 1950, I attended a meeting at the Royal Society of Medicine in London, England, at which it was formally resolved to constitute an International Federation of Physical Medicine. It was proposed and resolved that an interim committee be empowered to act on behalf of representatives nominated by national associations of physical medicine until an inaugural meeting could be called to make permanent arrangements. I was asked to serve as chairman of this interim committee. Dr. Svend Clemmesen of Copenhagen, Denmark, was appointed vice chairman, and Dr. Philippe Bauwens of London was appointed secretary. The other two members of this interim committee were Drs. Hugh Burt and William Tegner of London. It was resolved that the temporary seat of the International Federation of Physical Medicine should be in London, and it was decided to investigate the possibility of holding an International Congress of Physical Medicine in July 1952. Representatives of national associations of physical medicine from the United States, Denmark, Switzerland, Holland, Sweden, Australia and Great Britain have already signified their interest in participating in this international federation. I hope that the Section on Physical Medicine and Rehabilitation of the American Medical Association will lend its support to this important international project.

CONCLUSION

It is obvious that the scope of our new medical discipline is enormous and that the future of our specialty is promising. Our recent progress has been truly phenomenal, and this field, which is based on the medical applications of physics, should continue its expansion and in the future should attain new heights.

At this moment, we physicians who specialize in physical medicine and rehabilitation are riding on the crest of the flood, and our future should be extremely bright if we continue to bend every effort to promote good practice, sound teaching and conscientious research. We must not omit any step in collaborating with our colleagues in other specialties which will advance the welfare of our patients. "There is a tide in the affairs of men which, taken at the flood, leads on to fortune. But omitted, all the voyage of their lives is bound in shallows and in miseries. Upon such a full sea are we now afloat and we must take the current when it serves or lose our venture." [11]

11. Shakespeare, W.: Julius Caesar, act 4, scene 3, 1.

PHYSICAL MEDICINE AND REHABILITATION IN MEDICAL EDUCATION

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Physical medicine and rehabilitation offers the oldest therapeutic tools known to medicine, yet it is the newest medical specialty recognized by the Council on Medical Education and Hospitals of the American Medical Association. Because of the increasing knowledge of electronics and biophysics and a more comprehensive understanding of the biologic and biomechanical principles involved in the pathological processes of the disabled and chronically ill, this specialty has made more rapid strides in the past decade than in all time heretofore.

Today in the United States 11,500,000 persons, or 1 in 13, are over 65 years of age. There are 4,500,000 families in the nation in which the head of the family is over 65 and another 2,000,000 unmarried persons who have reached this age. Recently compiled 1948 mortality statistics of the National Office of Vital Statistics show that the average length of life in the United States has increased to 67.2 years.

As the population becomes older, it can be expected that the incidence of chronic disease and its resultant physical disability will increase correspondingly, for the higher the age group, the greater the incidence of chronic disease and disability. In the 25-year study that the United States Public Health Service conducted among 2,000 white families in the town of Hagerstown, Md., the incidence rates of chronic disease and physical disability were found at age 60 to be two and a half times the rates at age 45 and nearly eight times the rates found at age 25. This is a problem that has been medically created. If it is to be met, the leadership must come from medicine.

In the past the drama of medicine has come from the exciting victories in operative surgery, the solution of baffling diagnostic problems of rare diseases, the conquering of diabetes, pernicious anemia and nutritional deficiencies, the conquest of the infectious diseases with antibiotics and the sulfonamides, and the new frontal attack on arthritis and a score of other heretofore insoluble problems with pituitary adrenocorticotropic hormone (ACTH) and cortisone.

Medical research and its clinical application have made the solution of many of these previously complicated problems relatively simple. The stockpiling of knowledge gained from research has also piled up the years of life. With these advances the pendulum has swung, and today medicine's greatest problem is chronic disease and disability in an aging population.

As old as time and yet the youngest of all specialties in its present total concept, physical medicine and rehabilitation today offers the principal key to the solution of this baffling medical-social-economic enigma.

It is only possible to "tool up" for production by education—education of the public to know what they have a right to expect; education of the physicians certified in other specialties to recognize the knowledge and technics that are currently available; education of the general practitioner to know what type of patient

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Read before the Section on Physical Medicine and Rehabilitation at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950.

should be referred for specialized care, and, last but equally important, education of the specialist in physical medicine and rehabilitation.

The medical profession has proceeded to meet these needs by a dynamic program of graduate and postgraduate education: there is reason to be hopeful. During the past seven years the number of medical schools offering instruction in physical medicine and rehabilitation has more than doubled. As compared with only five approved residencies and fellowships in physical medicine in three medical centers at that time, as of April 1, 1950 the Council on Medical Education and Hospitals reported over 100 such residencies and fellowships in 42 medical centers.

The situation, however, is not as optimistic as it appears, for at the present time many of these residencies and fellowships are unfilled. The Veterans Administration, for example, has 16 approved residencies in 10 hospitals, but the score today shows 11 vacancies and only five residents. The situation is the same, or worse, in far too many civilian institutions. The average young physician coming from medical school and internship has been so imbued with the drama of acute medical emergencies and surgery that he looks down on most of the patients seen by the specialist in physical medicine and rehabilitation, and classifies them as "crocks." A "crock," by John Romano's definition, is "a patient from whom the diagnostic sheen has been worn." The therapeutic offerings which physical medicine and rehabilitation brings to these patients seem tedious, uninteresting and boring to the average young physician. In a frontal attack on this problem the first engagement must be the physician's battle against disinterest and boredom.

In physical medicine and rehabilitation one must teach not only the tangibles but the intangibles, not only by text but by example. In the first lecture to the freshman class at New York University College of Medicine this year, I made this statement, which I sincerely believe: "If you can come out of your four years in this Departmeant with but one thing, I shall feel your time has been well spent. That one thing is this: if you can get from teaching an old, battered hemiplegic, who has been relegated to a life in bed and wheelchair, to walk again and to take care of his daily needs, the same deep, inner satisfaction that you now get out of making the diagnosis of aleukemic leukemia, or some other obscure condition, then your time will have been well spent, for from 50 to 75 per cent of your patients will be individuals suffering from chronic disease, disability or related problems. If you cannot get this inner satisfaction from providing them with a life of dignity and at least some degree of self-sufficiency, much of your time in practice, instead of being stimulating and thrilling to you, will be hours of unending boredom, and under these circumstances you cannot practice 'good medicine.'"

One cannot hope, nor should one expect, to teach undergraduate students to become specialists in this field, as has been emphasized so many times; that is not the purpose of undergraduate medical education. One must, however, teach a basic philosophy and give students a broad understanding of what one is trying to accomplish and of the tools that are available. They must understand that physical medicine and rehabilitation is a service program offering diagnostic methods, therapeutic modalities and an integrated program for all types of patients, that it is a coordinated, logical and planned program which will allow the physician to provide total care for his patient. They must realize that the doctor's job is not finished when the temperature is down and the stitches are out but that it ends only when he has seen that the patient has had the benefit of every available therapeutic possibility that will permit him to get the most out of life within his physical and psychological limitations.

PROGRAM AT NEW YORK UNIVERSITY COLLEGE OF MEDICINE

During the past four years at the New York University College of Medicine such a program has been established. It is organized as a major department of the College of Medicine and functions as a service department to all other departments of the school. Responsibilities are based on this philosophy. The primary teaching effort has been philosophical, and the approach has been one of integration with the other departments, applying to this clinical field the knowledge gained in the basic sciences and other medical specialties, as well as the specific technics of this specialty.

The past four years have been difficult, and much has been learned in the hard school of experience. Next year, for example, kinesiology and muscle testing will be taught in the first year of medical school, not by lecture but by use of the same technics that have been time-tested in the teaching of physical diagnosis. Students will be divided into groups of four and will learn kinesiology and muscle testing as a part of their training in anatomy. In the first year they will also apply their knowledge of biophysics and electronics by studying the principles of electrodiagnosis. In the second year there will be presented history taking and physical examination in physical medicine and rehabilitation problems, the fundamentals of therapeutic exercises, practical tests for functional activities in daily living, the anatomic and functional disturbances in injuries, neurological disabilities and the influence of peripheral circulation on physical disabilities.

The third year schedule consists of lectures and demonstrations in the modalities of physical medicine, and in the fourth year the entire approach is to be one of interdepartmental integration and clinical demonstrations designed not only to emphasize specific diagnostic and therapeutic technics but to demonstrate, by example, the necessity for a total approach to the total needs of the patient.

The following outline, by title, is the present four year teaching schedule, which is under constant review and change:

First Year Class Schedule

1. Functional anatomy in physical medicine and rehabilitation.
2. The physician's responsibility for treating the patient as an individual.
3. Kinesiology.
4. Muscle testing.
5. Principles of electrodiagnosis.

Second Year Class Schedule

1. History taking in physical medicine and rehabilitation.
2. Physical examination and evaluation of the disabled.
3. Evaluation clinic.
4. Review of muscle testing and its practical application.
5. Fundamentals of therapeutic exercise.
6. Practical tests for functional activities of daily living.
7. Anatomic and functional disturbances in injuries.
8. Functional abnormalities in neurological disabilities.
9. The influence of peripheral circulation on physical disabilities.
10. Rehabilitation clinic.

Third Year Class Schedule: Lecture Demonstrations

1. Basic principles of physical therapy: thermotherapy.
2. Basic principles of physical therapy: hydrotherapy.
3. Basic principles of physical therapy: electrotherapy.
4. Basic principles of physical therapy: massage.
5. Practical applications of therapeutic exercise.
6. Indications for the use of physical agents.
7. Rehabilitation clinic.

Fourth Year Class Schedule: Integration Clinics

1. Psychological and emotional factors associated with injury and disease.
2. Physical medicine and rehabilitation in injuries: clinic.
3. Physical medicine and rehabilitation in orthopedic disabilities: clinic.
4. Physical medicine and rehabilitation in neurological disabilities: clinic.
5. Physical medicine and rehabilitation in the arthritides: clinic.
6. Physical medicine and rehabilitation in amputations: clinic.
7. Physical medicine and rehabilitation in peripheral vascular disease: clinic.
8. The use of crutches, braces and wheelchairs.
9. Rehabilitation of the hemiplegic.
10. Rehabilitation of the paraplegic.
11. Rehabilitation of the poliomyelitic.
12. Rehabilitation clinic.

In the third and fourth years clinical clerkships are available on the physical medicine and rehabilitation wards on an elective basis. In addition, members of the Physical Medicine and Rehabilitation Department are assigned for ward rounds and integrated teaching clinics in the other departments of the hospital—medical, surgical, orthopedic, neurological, psychiatric, pediatric, tuberculosis, public health, and preventive and industrial medicine.

It has been most interesting to note, during the past two years, when this teaching program has been operating in "high gear," the increasing interest of medical students in the dynamic approach to chronic disease. The physical medicine and rehabilitation wards are open to all medical students at all times, and one often finds them dropping in after hours or over the weekend. They are invited on the basis that these wards should be used for observation in physical medicine and rehabilitation as the laboratories of learning in vivo, just as the autopsy room has traditionally been the laboratory of learning post mortem.

SUMMARY AND CONCLUSION

In the undergraduate, graduate and postgraduate teaching in physical medicine and rehabilitation it cannot be emphasized too strongly that the underlying fundamental is the teaching of good medicine. This is difficult, for the specialist in the field of physical medicine and rehabilitation must have at least a basic understanding of medical, surgical, orthopedic, neurological and psychiatric problems, both diagnostic and therapeutic. One cannot accept without question the diagnosis, evaluation and therapeutic prescriptions of one's colleagues without a reevaluation if one is to accept the responsibilities of specialized care. The surgeon does not perform operation to correct a condition diagnosed by the internist without himself examining the patient. This is true throughout all of medicine where good medicine is practiced. The specialist in physical medicine and rehabilitation must stand for the same firm principles of good practice.

When the physician is capable of standing his ground in medicine generally and can add to this the special technics and modalities pertinent to his particular field, he is then a specialist in physical medicine and rehabilitation not only in name but in reality. He is at the threshold of great new opportunities; the door is ajar, but it must be opened wide. His is a great responsibility, for he holds the key to the solution of medicine's major problem, chronic disease and disability in an aging population.

EFFECTS OF EXTREME HEAT ON MAN

Protection of Man Against Conflagration Heat

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Randolph Field, Texas

CHARACTERISTICS OF CONFLAGRATION HEAT

Air raids in Germany killed about 800,000 persons,[1] a rough estimate accurate to not more than plus or minus 30 per cent. Reliable data on the distribution of different causes of death have not been published and possibly never will be published. The few known data[2] differ greatly concerning the relative number of injuries caused by heat from flames, radiant heat, carbon monoxide or mechanical agents. These data concern attacks on a small scale only. The larger the conflagration, or rather the affected area, the less nearly exact data one may expect. No survivor could report on the events in the center of Dresden, where 300,000 persons were reported killed in 24 hours.

Actual knowledge on conflagrations diminishes with the increase in size of the affected area, but one may attempt an extrapolation from physical and medical knowledge. This way of gaining experience is hazardous in view of additional dangers, typical for large scale catastrophes. These dangers are overheating and gas poisoning (mainly by carbon monoxide) in cellars, overheating and mechanical injuries during escape through streets, blocking of roads by debris, blocking of view by smoke and flame, flame torrent, lack of hospitals, doctors, police, transportation and water. This article deals mainly with physical effects of fire on man, especially in a common catastrophe.

During and after an air raid heat endangers man while he is (*a*) fighting the beginning fire in locally confined places (which requires strenuous physical effort), (*b*) staying in cellars while the heat penetrates from above or (*c*) fleeing through burning streets.

TRANSFER OF HEAT TO MAN

Apparently measurements of conflagration temperatures, primarily of the radiation values of burning areas, have as yet not been made. Such temperatures, however, can be extrapolated from the color of the glowing masses and burning gases. At night hot substances below 525 C. are dark, they then begin to radiate with a faint glow and show a full red glow at 700 C.; at 850 C. they are cherry red and turn to light red at 950 C.; at 1,100 C. they show yellow incandescence, and at 1,300 C. white incandescence begins, which becomes pure white at 1,500 C. The "radiation temperature" may be somewhat lower on account of the surrounding cooler, sooty fires or because of non-"black body" radiation, such as occurs with burning

From the Department of Biophysics, United States Air Force School of Aviation Medicine, Randolph Air Force Base.

1. Bond, H.: Fire and the Air War, Boston, National Fire Protection Association, 1946.

2. Bond,[1] Reissmann, K. R.: The Problem of Medical Care and Hospitalization Under Air Attack: Incidence of Air Raid Casualties in Berlin 1943-1944, USAF SAM Unnumbered Project (Sept.) 1948. Bericht über die 4. Arbeitstagung der beratenden Arzte, Deut. Militärarzt, 1944.

gases and also with soot particles. In practice true white incandescence is found mainly with incendiary bombs and glowing light metals whose temperatures may reach 3,000 C. The sun radiates at a temperature of about 6,000 C. Most open fires have a red to yellow appearance, i. e., their temperatures range from 500 C. to 1,000 C. Using thermocouples for testing open wood fires, I found average temperatures of 600 C., with peak temperatures never exceeding 860 C.

The study of heat effects on man presupposes an extrapolation of the laws of the heat exchange coefficient as they are known under normal conditions.[3] Principally, the flow of heat toward man is caused by the following factors: (*a*) conduction and convection of hot air, (*b*) contact with hot objects, (*c*) radiation from hot areas and gases and (*d*) inhalation of hot air.

Each factor, either in itself or in combination with others, can attain high values. With regard to their physiological effect and to the protection against it, they must be considered separately. As a rule, the effect produced by any kind of heat depends on the flow of heat transmitted, measured in calories per square meter per hour, independent of the individual factor.

Conduction and Convection of Hot Air.—The layman is easily inclined to regard the hot air as the main transmitter of heat. This is rarely the case. The vertical distribution of heat during fires as well as the coefficient of heat transmission disproves this opinion. The amount of heat transmitted depends principally on the air temperature and the wind and, to a certain extent, on the curvature of the afflicted surface. (Consequently, under otherwise equal conditions, more heat is transmitted per square centimeter to the tips of the fingers than to the trunk). Temperature differences provoke the "free" flow even when there is no wind forced on the body from outside. The upward stream of this free flow can be seen in the form of a flame, whereas there is a cool air flow coming from below and from the sides to be felt as the dreaded flame torrent. Also, an equivalent pattern of circulatory flow develops around a cool body in calm hot air, causing the heat transfer by convection.

According to well established theories the rate of heat transfer from hot air to a solid body (without outer wind) is directly proportional to the five-fourths power of the difference in temperature between air and body and inversely proportional to the fourth root of the absolute temperature of the air. If there is free convection without outer wind, the relation of the rate of heat transfer to absolute temperature is nearly linear within the range from 40 to 1,000 C., as is seen in the lowest curve in figure 1. The other curves in figure 1, also practically linear, show the relation of heat transfer to temperature in the presence of wind; heat transfer increases in proportion to the square root of the wind velocity. The wind pressure, which in case of a torrent of flames may impede walking, follows an entirely different physical law; that is, it increases with the square of the wind velocity and, therefore, becomes noticeable only after having attained a certain wind force. It then increases rapidly. Consequently the wind blows through our clothes and makes them flutter with increasing violence.

Heat transmission by convection in free air is accomplished by the continuous convective exchange of cold and warm "air masses" and, in the immediate vicinity of solid objects, by conducting the heat through a thin layer (a few millimeters' thickness) of static air enveloping the body. The hairs of our body and the outer small hairs of coarsely woven clothing protrude into this boundary layer, which is reduced by wind. Consequently, these small projections reach into a zone of higher temperature and greater inflammability.

Admixtures to the air, such as gases and floating corpuscles, as they quantitatively occur in fires, cannot change the air's heat capacity or heat conductivity to such an extent that the heat transmission would seriously be affected. Air with a dust content of 100 Gm. per cubic meter, which imperils life if inhaled,[4] increases the heat capacity of the air by less than 10 per cent. The humidity of the air is unimportant for heat transmission as long as condensation or evaporation is absent.

Contact with Hot Objects.—The burning effect of solids and liquids, striking skin or clothes, depends on the duration of the contact, temperature, heat capacity and heat conductivity of the clothes, the skin and the heat source. When touching a good conducting metal, the skin surface "assumes the temperature of the metal; when the skin touches a heat insulator, the insulator surface takes the temperature of the skin. The protection from glowing objects requires adequate covering with material resistant to ignition.

Radiation from Hot Areas and Gases.—The amount of radiation received by skin or clothes depends on the "radiation temperature" of the source, the solid angle of radiation (as seen from the point exposed to radiation), the inclination of the area exposed toward the radiating source, the absorption by the transmitting medium in between (air, dust, window glass) and the reflectivity of skin and clothes to radiation of the particular spectrum involved. A hemisphere is considered as the maximum possible radiating space angle, on which the calculation of heat transfer by radiation (fig. 1) is based. One tenth of its surface has an angle of 40 by 40 degrees square and one hundredth of its surface, accordingly, 12.7 by 12.7 degrees square. In the case of a man walking upright, lateral radiation naturally strikes a much larger area than radiation coming from above. The respective radiation temperatures have been mentioned before. In figure 1, based on a reflectivity of 10 per cent, one observes steep increase of the radiation intensities with rising temperature. The heat transfer values of a radiating hemisphere are always higher than those caused by conduction and convection through calm air of equal temperature.

Direct measurements made of different wood fires, such as wooden houses or piles of wood, always showed an average radiation temperature of 600 C. The radiating surface was comprised of flame and glowing and nonglowing wood. The absorption of this radiation by the air outside the fire proper is negligible.

Only radiation which is absorbed can be effective. If rays are reflected, the protecting device no longer needs to absorb the heat and transform it into the "evaporation-cold" of wet blankets or into the heat content of the clothes. Protection from radiation by reflection must, therefore, be well distinguished from all other preventive measures against heat.

3. Buettner, K.: Physikalische Bioklimatologie, Leipzig, Akademische Verlagsgesellschaft, 1938. G. Landsberg: Die Hütte, ed. 27, pt. 1, Berlin, Wilhelm Ernst & Sohn, 1940.

4. Desaga, H.: Experimental Investigations of the Action of Dust, in German Aviation Medicine, World War II, Washington, D. C., Government Printing Office, 1950.

4a. Hardy, J. D.: The Radiation Power of Human Skin in the Infra-Red, Am. J. Physiol. **127**: 454 (Oct.) 1939. Buettner, K.: über die Wärmestrahlung und die Reflexionseigenschaften der menschlichen Haut, Strahlentherapie **58**: 345, 1937.

Skin and clothes absorb radiations up to about 2,000 C. of radiator temperature almost completely; therefore, they do not reflect any fraction of the flame's radiation, even if they appear to the eye as white as a tablecloth or as the best technical whitings, e. g., magnesium oxide. The radiation's penetrative power into skin and clothing is insignificant. Radiation can penetrate into the outer layers of loose materials until sufficient hairs or fibers have blocked the way.

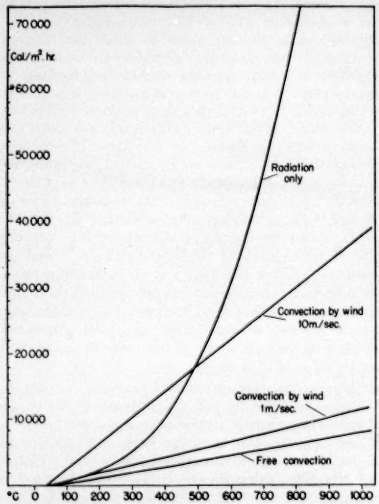

Fig. 1.—Heat transfer by radiation and by convection at different environmental temperatures. Data indicate heat flowing onto the surface of the human body at 37 C.

White surfaces and the skin reflect visible sun light but not infra-red light originating from fire; with metals it is opposite. In the visible region the reflection by metals is relatively poor except for aluminum, magnesium and silver; in the field of flame radiation, however, they reflect above 90 per cent, and for radiation of lower temperatures reflection exceeds 95 per cent. This high reflection of flame-radiation heat constitutes a reduction of heat otherwise developed in the clothes. This method is usually employed for warding off warm radiation in the inner coating of thermos bottles. An equally good effect can be obtained if this reflection principle is applied to ward off the radiation of conflagration heat.

Inhalation of Hot Air.—The heat transmission which takes place inside the body is discussed in the following section. The inspired air, during calm, is somewhat heated and moistened by mixing with the previously exhaled air and contact with warm skin, or vice versa in the case of hot air. Such variations are considerable; under cold conditions, e. g., at —40 C., the inspired air temperature may rise by 10 C.

EFFECT OF HEAT ON THE BODY

Heat injuries to man may be caused essentially by (*a*) overcharging his heat balance, (*b*) heating his skin (especially in places which are uncovered or only slightly covered) to such degrees that the skin suffers pain and burns, (*c*) heating his hair, clothes and the like above the ignition temperature and (*d*) inhaling hot air so that the respiratory organs are affected.

Heat enters the body mainly through the skin and usually increases the peripheral blood flow. This effect causes an increased heat conductivity of the periphery and, therefore, an increase of temperature of the body core. Profuse sweating, which usually commences a few minutes after heat exposure, may, through evaporation cooling, counteract the overheating with air temperatures up to 60 C. In moist air this limit will be reached at lower temperatures. The more heat enters the body, the greater the imbalance of physiological factors, such as the temperatures of different parts of the body or of the circulatory system; finally signs of breakdown occur. The rise of the average body temperature seems to be a valuable indicator of this stress. This does not mean that temperature increase above a certain level or to a certain degree will cause failure of the organism. The average temperature may be considered as a weighted mean of measured temperature of rectum, skin and expired air.

Concerning the rescue from distress caused by heat, the "survival time" is a less decisive factor than the span of time in which man is still able to act (called the "escape time"). Because of the lack of verified experiences in this field of extreme temperatures, I submit an estimation of the periods to be expected based on personal impressions. The statements hold for dry, motionless air, and equality of air and radiation temperature. According to the experiences mentioned one must anticipate the possibility of incapacitation when the average body temperature rises by as little as one degree (C.). The stages leading to a danger of incapac-

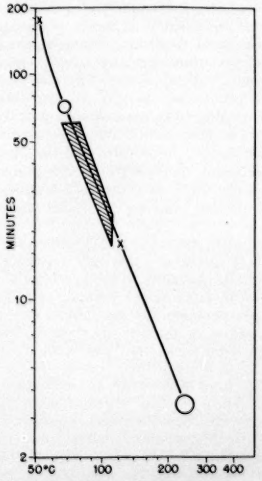

Fig. 2.—Average "escape time" for lightly clad man in a surrounding of high temperatures. Wall and air temperatures are supposed to be equal: no wind except the natural uplift. X = data according to K. Wezler (personal communication); O = data from the author. The lower right-hand point refers to a semi-accident with approximate data only. Shaded area according to observations of Blockley and Taylor.[8] The straight line is calculated on the assumption that a rise of one degree (C.) of the total body temperature is critical in determining the limit of escape time.

itation of a human being unaccustomed to heat are plotted in figure 2. They comprise all available data on hot chamber tests.[5] The straight line is calculated on the assumption of a subject with a heat capacity of 50 calories per degree (C.), a projection surface of 1.2 sq. M., an evaporation from skin and lungs of 250 calories per hour, a metabolic heat production of 250 calories per hour and heat permeability of clothes (worn above 80 C.) of 5 calories per square meter per hour per degree (C.). Heat transfer coefficients may be derived from figure 1. Accordingly, figure 2 demonstrates the safe periods in which man is still able to act. I emphasize the fact that the character of this diagram is only tentative and restricted to passive overheating, including at the most moderate exercise, like standing or walking. Man with fever or doing hard work may withstand a much higher increase of temperature, because the consequences of active and passive hyperthermia seem to differ.[6] With extremely high temperatures and correspondingly short periods of heat tolerance, the heat capacity of thick clothing may lengthen periods by one minute and more. Then, however, there is the danger of ignition of clothes.

Protection from heat by perspiration of the skin, provided that perspiration is in full function, is a decisive factor for the exposed parts of the body. It is limited by the body's water supply to the skin. Man, not accustomed to heat, can hardly perspire more than 600 or at the most 1,000 Gm. per hour, which corresponds to an "evaporation cold" of 560 calories per hour at the highest. This is somewhat more than the highest tolerable heat absorption for which a person may compensate by increasing the skin and body core temperature by one degree (C.) per hour; it constitutes a peak value which only a naked person may attain in exceptional cases. In short exposure to intense heat the perspiration of the covered parts is probably ineffective, because this moisture does not reach the outer surface of the clothes and, consequently, does not contribute to the cooling process by evaporation.

Even an optimally high evaporation would not be able to produce adequate cooling during extreme heat, i. e., at a skin temperature of 37 C. and calm, it would not exceed 350 calories per square meter per hour; at a wind velocity of 1 M. per second it would not be more than 1,100 calories per square meter per hour. Even if the air is dry, more heat or more "evaporation cold" will not be "taken up" by it, according to the laws of diffusion.

Exposure of a clothed body and an uncovered face to slightly moving air at a temperature of 200 C. to 250 C. proved especially instructive. The perspiration of the face, which had fully set in before, protected it from any injury. Only a small spot where the insulated frame of the eyeglasses rested on the skin showed a second degree burn. As a matter of fact, this spot had been excluded from the cold due to evaporation.

Pain and burns of the heated skin are also limiting factors. Calm dry air of more than 140 to 160 C. or an equivalent radiant heat will cause unbearable pain to unprotected skin prior to a physiological breakdown of the whole body in the above-mentioned manner. A previous thorough soaking with sweat may protect the skin so that it will tolerate without permanent damage a temperature of more than 200 C. for two to three minutes. This was the case in my experiment as shown in the lowest point of figure 2.

Data were obtained mainly by exposure of the forearm to the radiation of a 600 C. electric radiator (fig. 3). The intensity of this mainly infra-red radiation was changed by variation of the distance. The time of exposure was determined by the test person. Quick-responding thermocouples recorded the skin temperature; especially designed instruments yielded data of the received radiation (calories per square meter per hour). With skin temperatures around 32 C. before the experiment, unbearable pain occurred (fig. 3). Times ranged from less than two seconds, at the highest available radiation (17,000 calories per square meter per hour) to more than one minute. With radiations of less than 1,200 calories per square meter per hour the peripheral blood flow increased early enough to prevent the skin from reaching a critical temperature. The temperature threshold, critical for pain, was found to be between 42 and 45 C. Third degree burns occurred if more than four times the "pain dosage" was applied. Water layers, due to sweating, afforded protection from pain only for minor radiations as did the increase in peripheral blood flow.

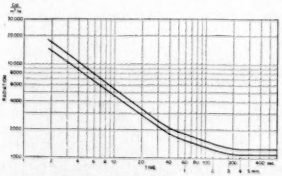

Fig. 3.—Prepain time and infra-red radiation. Time until unbearable pain occurs if the dorsal side of the forearm is irradiated by an electric radiator with the indicated amount of calories. About 50 per cent of all 67 observations on seven persons fall between the two lines.

All parts of the skin hit by the same amount of radiation are undergoing nearly the same degree of pain; that is, the amount of radiation necessary to produce unbearable pain in a certain time is independent of the location of the skin area being tested.

According to lay reports, the feeling of facial pain may be strong enough to delay one from taking preventive measures to escape the fire. Therefore, in hazardous conflagrations protection of the skin against pain is as important as protection against burns.

The intensity of radiation to which an observer may be exposed is proportional to the solid angle subtended by the fire. Illustrations of this can be seen almost daily. The larger the fire, the farther away people stay so as to receive a bearable radiation, which rarely surpasses 1,200 calories per square meter per hour. Certain calculations can be based on the solid angle subtended by the fires photographed at safe distances by reporters. The radiation from ordinary wood fires and similar conflagrations is roughly 30,000 calories per square meter per hour. At the distance from which pictures have been made, the solid angle subtended by the fire has been found to be such that the radiation to which the photographer is exposed is about 1,650 calories per square meter per hour. This is bearable for about 50 seconds (fig. 3).

5. (*a*) Blockley, W. V., and Taylor, C. L.: Studies on Tolerance for Extreme Heat, First Summary Report, University of California, Department of Engineering, 1948. (*b*) Buettner, K.: Conflagration Heat, in German Aviation Medicine, World War II, Washington, D. C., Government Printing Office, 1950.

6. Berde, B.; Takács, L., and Fekete, A.: Hormonal Body Temperature Regulation in Passive and Active Hyperthermia, Experientia 4: 446 (Nov.) 1948.

The inhalation of hot air may contribute to the overheating of the whole body and damage the respiratory organs. The combined data on breathing hot and cold air,[7] now covering temperatures of inhaled air from — 40 C. to 110 C., indicate an increase of exhalation temperature by some 20 C. in going from cold to hot air and an undersaturation in the water vapor of exhaled air for hot inhaled air. If one extrapolates these data to higher air temperatures, one finds that the heat load on the whole body via the skin always exceeds that via the respiratory organs. The same holds true if one compares the possible damage to unprotected skin, especially the face, with that to the breathing organs, both being affected by the same ambient air.[8] Therefore, the reports of damage to the respiratory tract by fire are rare as compared with damage to the other parts of the body. Smoke, dust and numerous chemical agents may endanger man in fire. The role of carbon dioxide,

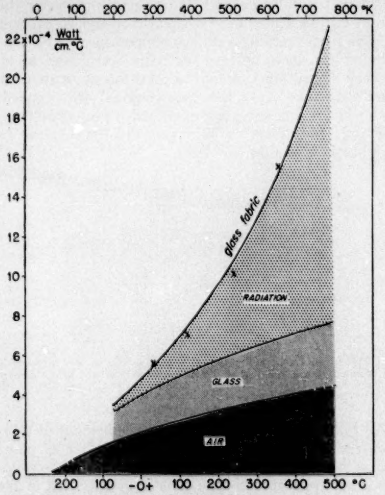

Fig. 4.—Heat conductivity of a swatch of woven glass fabric depending on the temperature of the glass fabric as measured in the high temperature calorimeter of the author. The lower abscissa represents temperature (Centigrade) and the upper abcissa absolute temperature. The ordinate shows heat conductivity; XXXX represents measured values, and the curves indicate computed shares of the three conductivities: (1) air between fibers, (2) along the glass fibers and (3) quasiconductivity by radiation from fiber to fiber.

inhaled dust and oxygen lack has been highly exaggerated. On the other hand, the morbidity and mortality from carbon monoxide in city conflagrations have been important.

DEFENSE AGAINST HEAT

Persons can protect their skin against radiant and conducted heat or against flying sparks and contact heat by (*a*) dry clothes and coverings, (*b*) wet clothes and coverings and (*c*) metal-coated clothing (especially effective against radiation).

Dry Clothes and Coverings.—The protection against heat that clothing can provide to man depends on its heat conductivity, density and specific heat. The specific heat is almost the same for all kinds of cloth, including glass fabrics, and it increases slowly with temperature. As compared with the whole body, the heat capacity of man's clothes is insignificantly small, but sudden heat may accumulate in clothing and dissipate itself later in a harmless form. How far this heat penetrates depends mainly on the heat conductivity and the specific heat of the cloth.

Essentially the conductivity of fabrics is additively composed of (1) conductivity of the enclosed air in proportion to the percentile volumetric air content, (2) conductivity of the material in proportion to its percentile volume of the material as such and corresponding to a factor which indicates how much the fibers run in the direction of the heat flow and (3) radiation from fiber to fiber. With the exception of metals, all fabric materials, including cotton, wool, glass, silk, nylon and asbestos, behave like black bodies with respect to radiation; hence in these materials radiant heat travels from one fiber in all directions until it encounters other fibers, in which it is absorbed and reemitted in all directions. The quantity of heat transferred among the fibers is proportional to the difference of the fourth power of their absolute temperatures. The coefficient of heat transfer is determined by the quotient of the quantity of heat transferred among the fibers divided by the simple temperature difference between fibers. A useful approximation is that the coefficient of heat transfer is proportional to the third power of the absolute temperature.

It should be emphasized then, that, since the heat transfer varies with the third power of the absolute temperature, exceedingly rapid increases in heat transfer will occur with high temperatures. For a sample of glass fabric woven like terry cloth, with a density of 0.41 Gm. per cubic centimeter and a thickness of 0.19 cm., four values were measured by means of an especially constructed instrument. From these, using a simple mathematical trial and error method, I determined the separate components of the measured heat conductivity, i. e., those of the air, the glass and the radiation among the glass fibers (fig. 4).

It follows that with temperatures above 200 C. the insulating values of fabrics may be improved by three processes: first, by metal coating of the individual fibers to reduce the interfiber radiation of heat; second, by diminishing the average distance between the fibers, which likewise reduces interfiber radiation, and, third, somewhat contradictory to the foregoing, by increasing the ratio of air versus solid material in the fabric in order to minimize direct conduction through the solid parts of the fabric.

Pressure, such as is caused by weight or stress (knee), increases the conductivity. Water in clothing may increase the conductivity four to five fold. As for materials withstanding high temperature, asbestos conducts more than threefold if compared with an equal thickness and tenfold if compared with an equal weight of glass fabric.[9]

At especially high ambient temperatures or intense radiation heat, clothes and hairs may be set afire. With rising temperature, first a vaporization of the volatile

7. Pfeiderer, H., and Less, L.: Bioklim. Beibl. **2**:1 (Jan.) 1935. Buettner, K.: Neue physikalische Ergebnisse zum Wärme- und Wasserhausalt des Menschen, Wien. med. Wchnschr. **94**:373, 1944. Blockley and Taylor.[8a] Buettner, K.: Heat Balance in Man, in German Aviation Medicine, World War II, Washington, D. C., Government Printing Office, 1950.

8. Moritz, A. R.; Henriques, F. C., and McLean, R.: The Effects of Inhaled Heat on Air Passages and Lungs, Am. J. Path. **21**:311 (March) 1945.

9. Buettner, K.: Protective Clothing Against Cold and Heat, in German Aviation Medicine, World War II, Washington, D. C., Government Printing Office, 1950.

substances and then a yellow discoloration turning into brown is found. This "preliminary effect" may facilitate the ignition later if the temperatures rise still higher.

In especially unfavorable circumstances, cotton can be brought to ignition at a temperature as low as 225 C. Wool and hairs, however, will first scorch without burning. Nylon melts instead of burning. Glass fabrics withstand 600 C. or more and asbestos 1,150 C. or more. It is of interest to note that in some cases of burning factories or stockpiles, raw wool was used successfully for covering incendiary bombs.

With a certain temperature and dryness of the clothes, ignition depends to a large extent on the fresh air supply to the pores of the fabric. Therefore, one can reduce the danger of ignition by covering its surface with metal foils or by impregnation with certain chemicals. Heat supplied by a current of air will produce an earlier ignition than an equal amount of heat supplied by radiation, especially if the clothing has a coarse surface.

Wet Clothes and Coverings.—Water's great cooling effect due to evaporation, approximately 600 calories per kilogram, is well known. A dripping wet blanket, weighing 2.5 Kg. may hold about 2 Kg. of water. (In general, the amount of absorption is at the most equal to the weight of the material.) Accordingly, because of evaporation, a maximal cooling rate of about 500 calories per square meter is obtained for the wet blanket. Protection by evaporation of water stored in blankets is temporarily limited; furthermore, it reduces the insulating quality of the clothes to about one quarter, and consequently it also reduces to a considerable extent the protection against cold, which may be necessary for further action. The permanent water supply for a watered protective garment can be calculated (fig. 1).

Metal-Coated Clothing and Protection from Radiation.—Reflecting the heat radiation by bright metal surfaces whose thickness is insignificant for the reflective power (its thickness has to surpass 0.0001 mm.) is the proper means of warding off this chief component of the incident heat. The practical utilization of metal reflection for protection against radiating fires depends on the application of the metal on fabrics or other supporting materials. Experiments with bronze paint or with sprayed or pulverized metal on adhesive bases and the electrolytic aluminum coating of rubber showed rates of reflection which are too low. The reason probably is that these methods do not result in a smooth surface but in a contiguity of numerous small hollow spaces in which the radiation is absorbed. Hence, the use of metal foil is the only method affording effective protection. Among metals aluminum has the advantage of a high rate of reflection, good rolling property, flexibility and economy; moreover it is resistant to ignition; its melting point is higher than that of any base (except asbestos) or adhesive agent used in protective coverings. In 1943 my associates and I were successful in gluing an aluminum foil of a thickness of 0.009 mm. onto textiles as well as onto paper. The material withstands crumpling without diminution of its heat-reflecting power below 93 per cent.

Many data have been published on the reflectivity of light and infra-red rays by aluminum. They differ greatly; e. g., for 500 millimicrons wavelength, reflectivities of 70 to 90 per cent are reported for cast aluminum and for vacuum sprayed aluminum on glass, respectively.[10] Because all measurements except those listed in the Handbook on Chemistry and Physics[10a] comprise reflection proper only, but not diffuse reflection, the total reflectivity of fire radiation even by cast aluminum should be somewhat higher than 95 per cent, whereas a decline by oxidation may be considered.

All further development of protective suits had to deal with pasting of aluminum foil of the smallest available thickness on different kinds of cloth.

The uncomfortable radiation effect on the eyes and their surroundings was first overcome by normal goggles worn beneath the aluminum hood and later by the same kind of aluminum-pasted cloth hood with many small holes. The principle of reflection may be used in glasses too. The metal coating has to be thick enough to reflect radiant heat and thin enough to transmit some visible light. Gold of some 30 to 50 millimicrons in thickness actually did this in our Wright Field experiments.

The first comparison of three kinds of protective suits was made in 1943. The aluminum suit was far superior to a wet blanket and to an asbestos suit. In a test experiment in 1944, men with aluminum-coated suits, eye protection by goggles and perforated aluminum cloth and glass fabric boots stood in closest proximity to a burning shack for more than 30 minutes without feeling uncomfortable. Experiments of this type have been repeated frequently. With the use of perfectly fitting aluminum suits radiation has never been the limiting factor, whereas such things as direct contact with flame or hot substances and falling debris sometimes have forced my colleague and me to withdraw. Many persons trapped by surrounding fires in the large conflagration in Wuerzburg in 1945 were piloted out and saved by rescue workers wearing the aluminum coat. A sample of this suit was on exhibit in the Army Air Force Aeromedical Center in Heidelberg from 1945 to 1947.

Results of Tests with Protective Suits

	Donning Time, Sec.	Weight, Lb.	Skin Temp. (F.)	Heat Transmission, Cal./M²/Hr.
Flame-dodger suit	60	43.84	102.0	50
Standard Bunkin suit	70	22.05	101.5	48
Buettner's aluminum suit	32	8.32	93.9	29

The Air Material Command, Wright Field, Ohio, continued development of my aluminum suit.[11] I had the opportunity of guiding this agency's efforts with my experiences. Comparative tests, including two other types of protective suits, were conducted which produced the results shown in the table.

The aforementioned data confirm the superiority of the suit coated with aluminum foil. A likely improvement would be the development of the most suitable fabric, probably glass fabric, on which the aluminum foil could be applied.

ATOMIC BOMBS

In Hiroshima and Nagasaki more persons were killed and injured by heat than by radioactivity. Many of the victims suffered burns of all degrees by the direct hitting, flashlike radiation of the bomb. All these persons were outdoors or near windows. The resulting skin burns and other signs show a remarkable dependency on the angle of incidence and sharp-cut reproductions of all shadow-casting objects. The same holds true for charring of wood and deterioration of wall paints. All these

10. (*a*) Handbook of Chemistry and Physics, edited by C. D. Hodgman, ed. 30, 1948, p. 2245. (*b*) Johnson: Nature, London **134**: 216, 1934. (*c*) Landolt-Bornstein: Physikalisch-chemische Tabellen, Berlin, 1931.

11. Suits—Protective, Fire Fighting, MCREXD 666: IT United States Air Force, Air Material Command, Aeromedical Laboratory, 1948.

facts prove that radiation, and not hot air, caused the damage and that this radiation is not scattered by the atmosphere.[12]

The radiation of the atom bomb, because of the extremely high temperatures, is active mostly in the range of visible and ultraviolet rays. It is for this reason that, contrary to flame radiation, the color of the object hit played a role. Brightly colored textiles afforded appreciable protection by reflection.

Since heat radiation produced more casualties at greater distances than any other direct effect of the atom bomb, the protection of man against heat gains special significance. Protection is afforded by any reflection cover; actually, brightly colored textiles and —with about the same coefficient of reflection—bright metals, such as the aforementioned aluminum suit, are appropriate.

SUMMARY

Large scale conflagration and the heat flash of the atomic bomb not only add to the known dangers of fire but produce entirely new hazards. The laws of heat exchange from fire to man and those of his main physiological responses are briefly discussed. In addition to carbon monoxide poisoning and the many hazards caused by the vastness of the destructions, radiant heat is of the utmost importance. Hazards from intense heat can be thoroughly averted by use of aluminum-coated protective clothing.

CARDIAC RESUSCITATION

Complete Recovery After Over Six Minutes of True Circulatory Arrest

WILLIAM I. WOLFF, M.D.
New York

Restoration of life to a patient who has seemingly died is a most dramatic incident. The reported cases with full return of the patient to normal after significant intervals of complete cessation of circulatory and respiratory function are not numerous. Yet the ability to perform such a feat when confronted with the sudden and usually unexpected death of a patient during anesthesia or surgery is well within the means of the average surgeon, provided that he is alert to the implications of the situation and psychologically prepared to act with celerity and boldness. Nowhere is the phrase, "he who hesitates is lost," so aptly applicable.

The technic of combating cardiac arrest during operation is becoming increasingly familiar. Cessation of cardiac contractions during open thoracotomy can be detected early and corrective measures instituted promptly and effectively. The remarkable case reports of Adams and Hand,[1] Beck, Pritchard and Feil [2] and Touroff and Adelman,[3] which demonstrate the extraordinary results of quick and persevering action, are quite conclusive.

During an intra-abdominal operation cessation of the heart beat is also readily detectable by palpation of the aorta or common iliac vessels or of the heart itself through the diaphragm. Surgeons have frequently returned enfeebled or absent cardiac activity to normal by the simple maneuver of mechanically stimulating the heart by manual massage through either the intact or incised diaphragm. Most of the reported cases of cardiac resuscitation have been of the above types.

Occasionally, however, the patient suddenly and unexpectedly dies during anesthesia alone or immediately postoperatively. Such a situation lends itself to correction only if bold and prompt action, involving the institution of adequate pulmonary ventilation and exposure of the heart for the performance of cardiac massage, can restore life to the patient before irreparable central nervous system damage has resulted from anoxia. Only a small minority of reports of successful cardiac resuscitation fall into this category. Although the causative factors underlying such forms of sudden exitus often remain obscure, it is nonetheless true that many of these patients can be saved if the surgeon who is present is willing and ready to embark on the necessary resuscitative measures. A pessimistic attitude is to be deplored.

The best criteria of true cardiac resuscitation are those postulated by Fauteux,[4] namely, "full and durable restoration, in due time to avoid eventual death, of the essential functions of a heart which has lost its power to propel blood and which is unable to recover spontaneously its effective value as a pump." By such standards the instances of real cardiac survival are not as numerous as the literature tends to show.

For these reasons the present case is reported; in addition, it illustrates several singular features with respect to the mechanism of respiratory arrest and cardiac arrest, the duration of the latter without central nervous system damage and the nature of a postresuscitation complication.

REPORT OF CASE

Preoperative Record.—C. A., a well developed Negro aged 45, entered the Deshon Veterans Hospital on April 21, 1949 with a diagnosis of chronic pulmonary tuberculosis, moderately advanced. Symptoms began in June 1948, and the sputum was positive for tubercle bacilli. A right pneumothorax was instituted at another hospital in September 1948, and a 58 day course of streptomycin was given. On admission to Deshon he had few symptoms and was almost normal in weight. Examination revealed a muscular person, with normal temperature and with evidence of a partial right artificial pneumothorax. The blood pressure was 140/90, the pulse rate was 80 and heart sounds were normal. Results of laboratory studies were within normal limits except that sputum examinations were positive for tubercle bacilli on direct examination and culture. Chest roentgenographs showed a normal-appearing heart, several linear fibrous strands extending from the lung root into the upper portion of the left lung and a 50 per cent pneumothorax on the right with pleural thickening and adhesions. No cavitation could be seen in the partially collapsed right lung, and further study did not show evidence of active disease on the left. Review of the patient's course and roentgenograms at a staff conference led to a recommendation of thoracoplasty on the right side.

During five weeks without pneumothorax refills there was little reexpansion of the right lung. On the day prior to surgical intervention intrapleural pressures were properly adjusted. The patient was ambulatory for two weeks prior to operation, displayed no exertional dyspnea and was judged to be an excellent operative risk.

12. United States Strategic Bombing Survey: The Effects of Atomic Bombs on Health and Medical Services in Hiroshima and Nagasaki, United States War Department, Medical Division, Washington, D. C., Government Printing Office, 1947. Larkin, J. C.: Distribution of Radiation in the Atomic Bombing of Nagasaki, Am. J. Roentgenol. **55:** 525 (May) 1946. Answers from Bikini, Science Illustrated (Nov.) 1946. Flick, T. T.: Ocular Lesions Following the Atomic Bombing of Hiroshima and Nagasaki, MDDC 936, U. S. Atomic Energy Commission, Oak Ridge, Tenn., 1947.

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Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

1. Adams, H. D., and Hand, L. V.: J. A. M. A. **118:** 133 (Jan. 10) 1942.

2. Beck, C. S.; Pritchard, W. H., and Feil, H.: J. A. M. A. **135:** 985 (Dec. 13) 1947.

3. Touroff, A. S. W., and Adelman, M. H.: J. A. M. A. **139:** 844 (March 26) 1949.

4. Fauteux, M.: J. Thoracic Surg. **16:** 623, 1947.

Operation.—On June 16, 1949 the patient was taken to the operating room after premedication with morphine sulfate 0.015 Gm. and scopolamine hydrobromide 0.0004 Gm. at 8:15 a. m. At 8:45 a. m. the anesthetist blocked the first through the fifth dorsal segments paravertebrally, each with 5 cc. of 1.5 per cent piperocaine hydrochloride (epinephrine added). After this the fourth cervical segment was similarly blocked. In each instance careful aspiration yielded neither blood nor spinal fluid. At 9:15 a. m., immediately after the block of the fourth cervical segment, complete respiratory paralysis developed, but the blood pressure and pulse rate remained normal. Oxygen was immediately administered to the patient by means of a tight-fitting face mask and manual pressure on the breathing bag. A little over five minutes later pulse and blood pressure failed and I was called from the next room.

The patient was, for all intents and purposes, dead. The absence of any detectable pulse was confirmed, and careful precordial auscultation disclosed no heart sounds. Striking the precordium with the hand several times had no effect. There was no indication of any spontaneous cardiac or respiratory activity. Artificial respiration was carried out by alternate compression and release of the thoracic cage (the patient being in the usual supine position), while the anesthetist made arrangements for intratracheal intubation. Fortunately this was accomplished with a minimum of difficulty, and from then on ventilation was maintained by controlled pressure on the breathing bag. At intubation the vocal cords were cadaveric in appearance and position. In the meantime 1 cc. of epinephrine in a syringe was being prepared by a nurse, and when intubation was completed this was injected into the heart through the fourth left intercostal space, blood being aspirated prior to injection. Further observation for about half a minute revealed no discernible improvement, and more direct measures were believed to be indicated after what was already too long a delay.

Gloves were hastily donned, and an upper midline abdominal incision was made from the xiphoid to the umbilicus. There was no bleeding from the wound. The left lobe of the liver was depressed posteriorly, and a 6 cm. incision made in the diaphragm anteriorly in an anteroposterior direction. In this way the pericardium was exposed and entered; about 30 cc. of a clear serous fluid escaped. The right hand was inserted into the pericardial sac, and the patient's heart was found to be firm and motionless. Cardiac massage was begun by pressure and release. Within about 15 seconds cardiac action began, the contractions being weak and irregular at first but within another fifteen seconds becoming regular and rapid, with a rate of about 160 beats per minute. During this time the anesthetist maintained the patient on controlled respiration with oxygen. It is estimated by the anesthetist, an assistant and I that the interval between the detection of cardiac arrest and the reinstitution of spontaneous activity was probably between seven and eight minutes, although the time was only roughly noted; allowing a margin for error, we all feel that certainly no fewer than six minutes elapsed.

About 30 seconds after cardiac activity was restored, bleeding appeared at the wound margins. The stomach was greatly distended, obviously a result of the administration of oxygen under pressure when the face mask was in place prior to intubation. When manual gastric compression failed, a needle was inserted into the stomach, attached to suction, and the stomach effectively and rapidly decompressed. The area of puncture was closed over by suture, as was a small serosal nick inflicted on entry into the abdomen. At this time (about 9:40 a. m., the heart rate was regular at about 100 and the blood pressure was 100/50. (Spontaneous respiration did not appear until 10:30 a. m.; the period of respiratory arrest was about one hour and 15 minutes in all.) During observation for 15 minutes the patient's condition remained satisfactory. The pericardium was then closed, solely because of the presence of bilateral pulmonary tuberculosis, by means of a continuous suture of chromic absorbable surgical gut on an atraumatic needle. Prior to suturing the pericardium 10 cc. of a 2 per cent procaine hydrochloride solution was instilled into the pericardial sac by means of a catheter for protection against manipulation.[5] The incision in the diaphragm was closed with interrupted absorbable surgical sutures and the abdominal wall repaired by means of through and through wire sutures placed in "near and far" fashion. Since spontaneous activity had appeared, it was necessary to give the patient anesthesia in the form of an oxygen-ether mixture from 10:30 to 10:50 a. m. to close the abdomen. At 10:45 a. m. the pulse rate was 76 and the blood pressure 100/50; when the patient was returned to the ward they were 80 and 114/70, respectively.

Before removal of the patient from the operating table a chest roentgenograph showed a tiny collection of air in the left pleural space and no change on the right side. An electrocardiogram taken at this time showed a sinus rhythm at a rate of 90 per minute and a normal tracing.

Postoperative Course.—Oxygen was administered to the patient by tent and by nasal catheter; large doses of vitamin B complex were given parenterally; caffeine with sodium benzoate and antimicrobial therapy were given by regular injections. That evening the patient was incontinent of urine but responded to painful stimuli by movement; he had no Babinski reflexes, and his eyes moved in all directions. After 7:00 p. m. he was sufficiently improved that he responded lethargically to questioning.

First Postoperative Day.—The patient was fully conscious and fairly well oriented and responded intelligently to questioning on the first postoperative day. The temperature was 101 F. and the pulse rate 100. Neurological examination showed generalized hyperreflexia, active cremasterics, intact position sense and no gross sensory disturbances. Cranial nerve testing revealed no abnormalities, and past pointing or astereognosis was not demonstrable. Except for events of the past 48 hours, retrograde memory was fairly intact. Despite these largely normal conditions the patient was kept in an oxygen tent and maintained on large doses of parenterally given vitamins, particularly B complex. Electrocardiograms showed no significant abnormalities; urinalysis revealed 1 plus albumin, a specific gravity of 1.010 and no sugar or acetone; the blood urea nitrogen level was 12.8 mg. per 100 cc., carbon dioxide combining power 66 volumes per cent and sodium chloride 562 mg. per 100 cc.

Second Postoperative Day.—The temperature was below 100 F., the pulse rate between 110 and 120 and the patient appeared well clinically on the second postoperative day. He was allowed out of bed. The cerebrum was clear and recent memory was improving but he was unable to concentrate for long. An electrocardiogram was within normal limits.

Third Through Eighth Postoperative Days.—The patient's behavior was normal in both intellectual and emotional spheres, his temperature ranged between 98 and 99 F., and his pulse rate fluctuated between 104 and 120 per minute. A chest roentgenogram on the fifth postoperative day showed a slight diminution in the size of the right pneumothorax and a normal cardiac contour. The only complaint was an occasional feeling of substernal discomfort aggravated by respiration but not requiring medication. The only significant abnormalities appeared to be the low grade fever and the tachycardia.

Ninth Postoperative Day.—There occurred a period of rather severe substernal discomfort, aggravated by inspiration and associated with a regular tachycardia of 130 per minute and a blood pressure of 96/76. These signs soon returned to previous values with a pulse rate of 106 and blood pressure at 112/84. Auscultation of the precordial area revealed good heart sounds, but there were to and fro noises over the heart base, accentuated by cardiac systole. There was no pulsus paradoxus. The episode was relieved by the administration of oxygen and morphine.

Tenth Postoperative Day.—On the tenth postoperative day the temperature was 100 F., the pulse rate 110 and the blood pressure 110/82. The patient was symptomatically improved, and fluoroscopic examination of the chest revealed no definite changes.

5. (*a*) Mautz, F. R.: J. Thoracic Surg. **5**: 612, 1936. (*b*) Burstein, C. L.: Anesthesiology **7**: 113, 1946. (*c*) Burstein, C. L.; Piazza, T. L.; Kapp, L. A., and Rovenstine, E. A.: Surgery **25**: 36, 1949. Harken, D. E., and Zoll, P. M.: Am. Heart J. **32**: 1, 1946. (*d*) Rovenstine, E. A., and Papper, E. M.: Bull. New York Acad. Med. **25**: 298, 1949.

Eleventh Postoperative Day.—The temperature was 98.6 F. and the pulse rate 110 the next day. He again complained of severe substernal discomfort, but electrocardiograms showed only sinus tachycardia at 112 per minute and a lowered voltage in the QRS complex in lead I. Auscultation revealed what was thought by the cardiologist to be a presystolic gallop rhythm, with the adventitious sounds noted previously still present. A 6 foot (183 cm.) distance chest roentgenogram showed an increase in the size of the cardiac silhouette, which now had a transverse diameter of 14.5 cm. as compared with measurements of 13.6 cm. on the fifth postoperative day and 11.5 cm. preoperatively. The cardiac outline did not change significantly in supine and decubitus positions. Pneumothorax pressures were unremarkable. Fluoroscopically, the cardiac pulsations were of diminished amplitude.

Periodic recurrences of the substernal pain, radiating to the left, appeared and did not respond to nitroglycerin (glyceryl trinitrate) sublingually, requiring narcotics for control. The venous pressure was 5 cm. of water and circulation times were normal, with 11 seconds arm to lung time and 17 seconds arm to tongue time, both checked doubly. When the pain persisted with increasing severity throughout the day, pericardial aspiration was attempted via the subxiphoid route and 35 cc. of serous, slightly blood-tinged fluid was aspirated. An infusion of 0.1 per cent procaine hydrochloride was administered during this procedure without discernible effect.

Twelfth and Thirteenth Postoperative Days.—Substernal pain continued on the next two days. Adventitious sounds over the heart suggested either a rough systolic and diastolic friction rub or a gallop rhythm. The temperature was 98.4 F., the pulse rate 120 and the blood pressure 104/78. The abdominal wound was cleanly healed, and removal of the sutures had no effect on the pain. Chest roentgenographs showed further increase in the transverse diameter of the heart to 15.1 cm.

Fourteenth to Twenty-Second Postoperative Days.—On the fourteenth postoperative day substernal pain was extremely intense and unresponsive to nitroglycerin, oxygen therapy, diphenhydramine (demerol®) hydrochloride and morphine. Physical signs were not significantly altered. The pulse rate was 128 and the blood pressure 114/88 with no paradoxical changes. Venous pressure, however, had risen to 21.2 cm. of water, arm to lung time to 10.6 seconds and arm to tongue time to 21.8 seconds. During a 0.1 per cent infusion of procaine hydrochloride another pericardial aspiration was performed by the subxiphoid route and 60 cc. of dark, viscid blood was obtained. There were no indications that the needle tip might be in a cardiac chamber. The blood clotted rapidly, and a larger quantity could presumably have been withdrawn.

The pericardiocentesis was followed by striking symptomatic relief, and the subsequent course of the patient was one of progressive improvement. An electrocardiogram a few hours later showed sinus tachycardia and some suggestion of the "S-T stage of pericardial effusion," but over the next several days tracings returned to normal. There were never any physical signs of heart failure or frank cardiac tamponade other than those already noted. On the sixteenth postoperative day the blood pressure was 106/74, the pulse rate was 105 and adventitious heart sounds were not detectable. The substernal pain never recurred with any appreciable severity. By the nineteenth postoperative day the temperature had returned permanently to normal, the pulse rate was persistently below 100 per minute and the blood pressure remained at about 106/76. The venous pressure was down to 4.8 cm. of water, and the circulation times were 14 seconds and 5.2 seconds. The chest roentgenographs showed corresponding alterations, with the transverse cardiac diameter diminishing to 12.0 cm. and then 11.7 cm. three days later.

Subsequent Course.—The patient remained relatively well, had no further symptoms at rest or on activity, and became anxious to have his thoracoplasty completed. Psychometric studies showed no abnormalities. Three months later a three-stage right posterolateral thoracoplasty was carried out with the patient under general ether anesthesia; operative and postoperative courses were entirely uneventful. The patient continued to do well and was discharged from the hospital about a year later.

COMMENT

Any explanation of the mechanism of the episode herein reported can only be speculative. The likely responsible factor seems to be the inadvertent injection of an anesthetic agent into the subarachnoid space while the fourth cervical nerve was being blocked. Prolongation of this space along the nerve roots through the intervertebral foramen is a familiar anatomic fact. Withdrawing the syringe plunger prior to injection of a solution into such a dural cuff may cause the tissues to collapse against the needle opening and prevent aspiration of cerebrospinal fluid. Intravascular injection of the piperocaine hydrochloride solution is a second but less likely possibility.

Whatever the initial incident, it apparently first produced selective paralysis of the respiratory center. Collapse of the circulatory mechanism followed after an interval of five minutes, and again the chain of physiological events is conjectural. Responsible factors may be (1) the direct action of the anesthetic agent on the center, (2) anoxia or (3) a vagovagal reflex. The proximity of the medullary centers for respiration and cardiac control make direct action of an intraspinally injected anesthetic agent on the latter a possibility; however, the interval between respiratory failure and circulatory arrest is difficult to explain on this basis. Anoxia seems even less likely; if the artificial respiration employed during the interval separating respiratory and circulatory arrest were so inefficient as to allow failure of the cardiac center it hardly seems plausible that the higher, cerebral centers would have been as completely spared as they eventually were. The vagovagal or cardioinhibitory reflex appears the most reasonable explanation. Severe gastric dilatation was present as a result of positive pressure breathing control exerted with a tight face mask in place, forcing air down the esophagus of the patient. This gastric dilatation probably produced cardiac arrest through a vagovagal reflex acting on a normal or weakened cardiac center.[1] Vagotonic responses to excessive manipulation of the stomach during abdominal surgery are not uncommon. This mechanism also fits in with the promptness of response to cardiac massage.[6]

The duration of circulatory arrest without cerebral damage is also remarkable. I feel certain that the length of this period has not been overestimated. If anything, I have been tending in the opposite direction in stating the time interval. The best explanation for this unusual result lies in the immediate and almost continuous performance of artificial pulmonary ventilation. That this in itself may provide cerebral circulation will be discussed later.[7]

It is also most difficult to account for the postoperative complication of pericarditis and hemopericardium. Many opportunities for trauma were present, but bleeding was not noted during the half hour or longer that direct observation of the pericardial region of the patient on the operating table was possible. The insidious onset and progression, the degree of pain, the slowness of signs of pericardial fluid to appear and the fact that these attained a maximum only after 14 days are most remarkable. The dramatic response of the patient to pericardial aspiration, however, is not extraordinary and parallels the results from this procedure in cases of traumatic hemopericardium with

6. Johnson, J., and Kirby, C. K.: S. Clin. North America **29**: 1745, 1949.

7. Thompson, S. A., and Rockey, E. E.: Surg. Gynec. & Obst. **84**: 1059, 1947. Thompson, S. A.; Lange, K., and Rockey, E. E.: J. Thoracic Surg. **16**: 710, 1947. Thompson, S. A.: Ibid. **17**: 323, 1948.

tamponade as reported by Ravitch and Blalock [8] and others. I have not noted this postresuscitation complication, however, in any of the literature read.

MANAGEMENT OF CARDIAC ARREST

Duration of Cardiac Arrest Compatible with Life.—The question of how long the human organism can survive cardiac arrest without sustaining irreparable damage requires clarification of two points, (1) the time period that the central nervous system can be deprived of oxygen and still recover fully and (2) the time period after which a disintegrated cardiac mechanism can no longer be returned to normal. These two factors are quite separate and often unrelated. Herein lies much of the confusion in the literature regarding the maximum period after "death" that one has available to achieve a happy result through resuscitative measures. Unquestionably the heart can be returned to permanent normal activity after an interval of arrest many times greater than that over which the central nervous system can withstand anoxia. By providing, then, some means of aeration and circulation of the blood other than through spontaneous cardiac contraction, the surgeon can prolong the period of grace at his disposal. Thompson and co-workers [7] have shown that some cerebral circulation can be effected solely by artificially ventilating the lungs, even in the face of complete cardiac inactivity. Whether the circulation thus produced is quantitatively significant, however, is still within the realm of speculation. Alternate compression and release of the heart, abetted by the natural cardiac valvular system, has been amply demonstrated as capable of providing a quantitatively adequate circulation.[9] When cardiac massage is combined with suitable aeration of the lungs, a situation is created that may offer the surgeon a period of an hour or longer during which he may strive to correct the physiological disturbances. The validity of this observation is supported by several case reports.[10]

The time period that the central nervous system can be deprived entirely of oxygen and still recover *fully* has never been accurately determined. The highest centers, phylogenetically, are damaged first, with disintegration proceeding down this scale as the period of anoxemic insult is prolonged. Minor disturbances at the cerebral level are not readily detectable clinically. The most commonly stated figures, based on experimental and clinical experiences, vary from three to seven minutes. Animal experiments have yielded results varying from 30 to 45 seconds,[11] to three to four minutes [12] and up to 15 to 16 minutes.[13] Analysis of these experimental discrepancies convinces one of the danger of transferring, without modification, such results over into experience with humans. In several clinical reports complete cerebral recovery followed fairly long periods of alleged cardiac arrest: Mollison, 13 + minutes [14]; Hyman, 11 minutes,[15] and Kleinberg, 10 to 15 minutes,[16] to give examples. By the same token, such figures cannot be accepted at face value: in some of such reported instances absolute circulatory arrest was not present throughout. The period of "cardiac arrest," as Barber and Madden [17] logically hold, should be regarded as the "interval between the cessation of the heart beat and the performance of manual cardiac massage," and not the time until the "restoration of a normal spontaneous cardiac rhythm." For purposes of distinction, if the term *circulatory arrest* were used to cover the former interval and *cardiac arrest* reserved for the longer latter period, some of the confusion resulting from differences in terminology might be cleared.

Treatment of Cardiac Arrest.—When faced with the problem of sudden death, the clinician must direct his efforts along two lines, (1) restoration of respiratory activity and (2) restoration of cardiocirculatory activity. If only one of these vital functions has ceased to operate efforts must be no less determined lest the other supervene, as was the sequence of events in the case here reported.

Inasmuch as the cardiac mechanism cannot long operate by itself or provide useful blood to the brain in the absence of adequate quantities of oxygen, one must strive to establish, within the space of a minute or two, some effectual mode of pulmonary ventilation, preferably with pure oxygen.

Restoration of Respiratory Activity.—Pulmonary ventilation must be instituted without delay and maintained continuously. If mechanical aids are not immediately available, artificial respiration should be started either by mouth to mouth breathing or by manual pressure-release methods applied to the costal cage. These admittedly poor methods must be continued without interruption until more efficacious measures can be substituted. Unless optimal positioning of the head and neck of the patient is maintained, i. e., extension of the head on the neck and upward support of the lower jaw, the gas exchange taking place with these methods may be nil.[18] The rather simple respirators studied by Motley and co-workers [19] or the machine recommended by Mautz and Beck [20] offers an extremely efficient form of artificial respiration, greatly superior to any known purely manual method. In the absence of such a respirator the use of an anesthetic machine, or simply an oxygen tank, with a breathing bag and a tightly fitting face mask will afford a means of more efficient ventilation and a supply of oxygen; it should be substituted for the above modalities with the greatest possible speed. One disadvantage of this last method was demonstrated in the present case. Whenever possible, an endotracheal tube should be inserted with the greatest celerity; this is the most effectual way of supplying oxygen.[17] When the anesthetist is changing the method of oxygen administration from mask to endotracheal tube, ventilation may be continued by manual methods.

The gas administered is preferably 100 per cent oxygen. Carbon dioxide should not be added, as the patient has already accumulated excessive amounts of this substance in his tissues.

8. Ravitch, M. M., and Blalock, A.: Arch. Surg. **58**: 463 (April) 1949.

9. (*a*) Dripps, R. D.; Kirby, C. K.; Johnson, J., and Erb, W. H.: Ann. Surg. **127**: 592, 1948. (*b*) Beck, C. S., and Rand, H. J.: J. A. M. A. **141**: 1231 (Dec. 24) 1949.

10. Brantigan, O., in discussion on paper of Fauteux.[4] Adams and Hand.[1] Beck, Pritchard and Feil.[3] Touroff and Adelman.[5]

11. (*a*) O'Shaugnessy, L.: Lancet **2**: 969, 1939. (*b*) Trendelenburg, F.: Verhandl. d. deutsch. Gesellsch. f. Chir. **37**: 89, 1908, cited by O'Shaugnessy.[11a]

12. Richet, C.: Arch. de physiol. norm. et path. **26**: 653, 1894, cited by Fauteux.[4] Weinberger, L. M.; Gibbon, M. H., and Gibbon, J. H., Jr.: Arch. Neurol. & Psychiat. **43**: 615 (April) 1940. Gibbon, J. H., Jr.: Surg., Gynec. & Obst. **69**: 602, 1939.

13. (*a*) Stewart, G. N.; Guthrie, C. C.; Burns, R. L., and Pike, F. H.: J. Exper. Med. **8**: 289, 1906. (*b*) Pike, F. H.; Guthrie, C. C., and Stewart G. N.: ibid. **10**: 490, 1908. (*c*) Mayer: Med. Centralbl. **16**: 579, 1878, cited by Stewart and others.[13a]

14. Mollison, W. M.: Brit. J. Child. Dis. **14**: 42, 1917.

15. Hyman, A. S.: Arch. Int. Med. **46**: 553 (Oct.) 1930.

16. Kleinberg, S.: J. A. M. A. **89**: 172 (July 16) 1927.

17. Barber, R. F., and Madden, J. L.: Am. J. Surg. **64**: 151, 1944.

18. Motley, H. L.; Cournand, A.; Werkö, L.; Dresdale, D. T.; Himmelstein, A., and Richards, D. W., Jr.: J. A. M. A. **137**: 370 (May 22) 1948.

19. Motley, H. L.; Werkö, L.; Cournand, A., and Richards, D. W., Jr.: J. Aviation Med. **18**: 417, 1947. Motley and others.[18]

20. Mautz, F. R.; Beck, C. S., and Chase, H. F.: J. Thoracic Surg. **17**: 283, 1948. Beck and Rand.[9b]

Restoration of Cardiac Activity.—Once a dependable means of ventilating the lungs has been secured—and this should take no more than one to two minutes—it behooves the surgeon to institute cardiac resuscitation by the quickest effective route. It is doubtful whether the intracardiac injection of epinephrine ever does more than delay the application of better methods, and in some circumstances it may actually be harmful [5a, b] Occasional successes are reported with its use,[21] but such instances are indeed rare when compared with the vast number of times the method has been tried and found wanting.[22] It is justified only when circumstances make an attempt at cardiac massage unfeasible. The most direct approach to the problem is to expose the heart surgically and begin cardiac massage. Regardless of whether spontaneous cardiac action is induced, a satisfactory though artificial circulation is thus started. With oxygen being introduced into the pulmonary alveoli, the patient can be carried over the critical period of cerebral anoxia, giving the surgeon a longer time to seek more permanent results.[23]

When the heart is exposed one of two conditions will commonly be found: (1) absolute cardiac standstill or (2) ventricular fibrillation. Other less likely possibilities are (3) extremely feeble, fairly regular cardiac pulsations, insufficient to produce an effective circulation, or (4) an extremely slow and irregular idioventricular rhythm due to heart block. In any of these conditions cardiac massage, properly applied, will increase the cardiac output to levels compatible with life and may stimulate the myocardium sufficiently to induce adequate spontaneous contractions. With ventricular fibrillation it preserves the integrity of this muscle through its coronary circulation, so that serial defibrillation as described by Wiggers [24] and by Beck and associates,[25] the most effective form of treatment, can be attempted. This may be aided by the intracardiac or intravenous injection of procaine or diethylaminoethanol.[26]

Cardiac massage, once instituted, should be maintained until spontaneous rhythm is restored. This may supervene after long intervals—up to seventy minutes [10] —of massage and a live and active patient result.

Surgical Exposure of the Heart.—The best means of access to the heart depends on the circumstances in which cardiac arrest occurs. The problem is simplest during open thoracotomy. When arrest takes place during an abdominal surgical procedure it is somewhat more difficult, and when neither of the two body cavities is open at the time the problem is most complex. Few of the successful cases reported fall into this latter category.

During an abdominal operation the surgeon should slide his hand up under the diaphragm anteriorly and compress the heart against the anterior chest wall if it has stopped.[27] If a half minute of such stimulation is fruitless, he should waste no further time and should actually expose the heart. (During this period the anesthetist should busy himself with securing control of pulmonary ventilation, whether or not respiratory arrest is present, for if it is not it soon will be.) The abdominal incision should, if necessary, be extended cephalad, the left lobe of the liver deflected posteriorly and an incision made in the anterior tendinous portion of the diaphragm. Here speed must be guided by caution lest too vigorous action result in nicking or cutting into the myocardium, an accident which has been known to happen. The pericardial sac will generally be entered, once the diaphragm is penetrated, and the hand can enfold the heart and compress it rhythmically.

When neither the thoracic nor the peritoneal cavity is open the surgeon is most apt to be hesitant, and much valuable time is lost by delay. Precious time must not be wasted in attempting to prove the diagnosis [9a] or in administering drugs by intracardiac injection (see below) prior to exposure of the heart. A decision must be made quickly and converted unhesitantly into action. This is most likely to occur when the surgeon is psychologically prepared for such an emergency by having given the matter prior thought.

Two exposures of the heart are available—the transperitoneal and the transthoracic. The transthoracic exposure, made in the fourth left intercostal space anteriorly, with the costal cartilages cut above and below, gives the widest and most direct access to the heart. It is therefore recommended by some.[28] It has the disadvantages of embarrassing pulmonary ventilation through collapse of the left lung in the absence of a closed anesthetic system or respirator, and it generally takes longer for a surgeon untrained in thoracic work to perform. The transperitoneal approach, through an upper median or paramedian incision, yields less free but adequate exposure of the heart, is more familiar to the average surgeon and may be faster for him.

Cardiac massage is best performed by a gliding motion from the apex to the base of the heart. Through the thoracic incision the pericardium need not be opened. When possible, the maneuver (as suggested by Wiggers and by Dripps and associates) of compressing the base of the aorta simultaneously with ventricular compression to increase coronary blood flow seems reasonable.

Compression of the ventricles should be performed at an optimal regular rate of about 60 to 80 per minute.[6] With each artificial systole it is often possible to produce a detectable blood pressure of 60 mm. of mercury.[9b] Beck and Rand have devised a machine using suction cups which appears considerably more efficient (and less tiring) than manual methods.

Once spontaneous cardiac action has started and continues, it may be wise to instill a 1 to 2 per cent solution of procaine hydrochloride into the pericardial sac to reduce cardiac irritability and possibly protect against fibrillation. If the pericardium has been opened it is not necessary and probably is unwise for the surgeon to suture it [27]; the open pericardium permits any fluid which may accumulate to drain off.

How long should cardiac massage be continued if spontaneous cardiac action does not take over? This question is difficult to answer. The indications are that an hour is not too long. During this period adjuvant methods such as the injection of drugs may be tried. With cardiac standstill massage alone may restore normal rhythm. If this fails, after a period of a minute or so, epinephrine is the drug of first choice.

21. (*a*) Cook, L.: Brit. M. J. **2**: 1118, 1926. (*b*) Mollison. [14]
22. Personal experiences of the author, and personal communications of other physicians to the author. Johnson and Kirby.[9] Cook.[21a]
23. Beck, Pritchard and Feil.[5] Johnson and Kirby.[9] Dripps, Kirby, Johnson and Erb.[9a]
24. Wiggers, C. J.: Am. J. Physiol. **116**: 161, 1936; Am. Heart J. **20**: 399, 1940.
25. Beck, C. S.: Am. J. Surg. **54**: 273, 1941. Beck, Pritchard and Feil.[5] Beck and Rand.[9b]
26. Burstein.[5b] Rovenstine and Papper.[5d]
27. Nicholson, J. C.: Brit. M. J.: **1**: 385, 1942.

28. Footnotes 6 and 9.

Small doses (0.5 cc. of a 1:1,000 solution in 5 cc. of saline solution) are preferable [9b] and should be injected into an auricle [29]; massage should be continued until a response occurs. This will, as a rule, happen.[21a] Subsequent repetition of this or smaller doses may be required if the heartbeats become feeble again. When the heart is dilated and flaccid, 5 cc. of a 1 per cent solution of calcium chloride may be injected if epinephrine fails; this presumably increases myocardial tone (Beck). Fauteux recommends cautious injection of 1 to 2 cc. of a fresh 0.5 per cent solution of barium chloride for flabby, atonic hearts.

When ventricular fibrillation is present it is necessary to prepare the heart with procaine by injecting a few cubic centimeters of a 1 per cent solution of the drug into the lumen and bathing the epicardium with a few cubic centimeters more. Then defibrillation must be performed by using electrodes on either side of the heart and a current of 110 volts and 1.5 amperes as described in detail by Beck. When a state of standstill has been obtained, one resorts to massage and epinephrine as previously described. Collins has recently made a preliminary report on the promising method of intravenous administration of a quinidine lactate solution for the control of acute arrhythmias occurring during anesthesia.[30]

Factors Contributing to Success.—The factors governing the success or failure of the resuscitative attempts are varied and complex.[28] The most notable ones are: (1) the element precipitating the cardiac arrest (often difficult to determine); (2) the duration of the arrest; (3) the age and general condition of the patient and his cardiac mechanism, and (4) the type of cardiac abnormality supervening.

The success of any plan for resuscitation depends on speed, and speed is governed by advance preparation. The surgeon must be psychologically prepared to act and must have a clear mental picture of the steps to be taken. He is aided immeasurably when the operating theater possesses the proper materiel to facilitate rapid action. Beck has long elaborated on the necessary approach to the problem. With more surgical operations being performed in aged and cardiac patients, the day must be hastened when no operating theater is complete unless it is prepared to meet the exigencies of such situations. Preparation will eventually mean having *readily available* and in *working order* a direct reporting electrocardiograph machine, some form of breathing machine, perhaps a cardiac pumping mechanism, endotracheal tubes and laryngoscopes, electrodes and electrical equipment suitable for defibrillation, the indicated drugs and the means for increasing blood volume rapidly by the intravenous or intra-arterial route.

SUMMARY AND CONCLUSIONS

1. A case of cardiac arrest, not occurring during operation, is reported, wherein surgical exposure of the heart and cardiac massage resulted in complete recovery after over six minutes of circulatory arrest.

2. The mechanism of respiratory and circulatory failure is considered, and an unusual complication, namely, hemopericardium, is presented.

3. The problem of cardiac arrest and cardiac resuscitation is discussed.

15 East Ninety-First Street (28).

29. Fauteux.[4] Hyman.[33]
30. Collins, V. J.: New York State J. Med. **49**: 1554, 1949.

BY-EFFECTS OF IRRADIATION ON THE SKIN

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Besides the ordinary tanning and burning from ultraviolet light and the more serious effects on the skin of overexposure to roentgen rays or radium, there are other phenomena resulting from the action of light on the skin. Perhaps the commonest is the infectious eczematoid dermatitis superimposed on radiodermatitis, brought on during the treatment of malignant growths. MacKee [1] discussed it in 1921 and Castigliano [2] in 1942. It spreads beyond the limits of the area exposed to the radiation therapy but yields to soothing antiseptic treatment.

A ring of large comedos is sometimes seen about the scar resulting from the healing of an epithelioma of the face after radiodermatitis, as reported recently by Bluefarb.[3] He explained this, occurring in a patient well beyond the age at which acne is expected, as due to stimulation of the sebaceous glands adjacent to the area treated.

H. L. Arnold [4] last year reviewed the literature on the subject of widespread skin disease following roentgen therapy and listed a series of reports from various authorities between 1902 and 1941. He then reported three cases of skin eruption which appeared four to 15 days after treatment with high voltage, screened roentgen rays. The first patient, four days after the last of the series of exposures totaling 12,000 r on seven areas, had typical erythema multiforme bullosum. The second patient, 15 days after receiving 2,000 r to each of four areas, had deep red patches of erythema of the palms and soles and a generalized eruption of indistinct red papules, somewhat pruritic. The third patient, six days after receiving 2,000 r on each of three areas, had a nonpruritic eruption of deep seated, skin-colored papules 2 to 6 mm. in diameter on the external surface of both arms. Arnold considered that all these lesions could be classed as erythema multiforme. All cleared spontaneously in a few weeks.

After exposure of senile keratoses to strong sunlight, with or without sunburn on the adjacent healthy skin, it is not uncommon for the lesions to redden violently, sometimes with oozing and crusting. This reaction is accompanied with itching and burning; it persists for several weeks and then subsides spontaneously. Poth [5] reported tumor formation on the back of the hand of a Texas fisherman after a violent reaction of this kind. After exposure of the skin to intense sunlight and subsidence of a sunburn, tumors up to 2 by 1.5 cm. in size appeared and lasted for months. Histologically, intense hyperplasia of the epidermis with a formation of epithelial pearls and an infiltrate of lymphocytes and plasma cells in the papillary layer were seen, but there were no definite signs of malignancy. After eight months the tumors receded spontaneously.

1. MacKee, G. M.: X-Rays and Radium in the Treatment of Diseases of the Skin, Philadelphia, Lea & Febiger, 1921, p. 220.
2. Castigliano, S. G.: Dermatoses Associated with Roentgen Therapy, Am. J. Roentgenol. **46**: 518 (Oct.) 1942.
3. Bluefarb, S. M.: Comedos Following Roentgen Ray Therapy, Arch. Dermat. & Syph. **56**: 537 (Oct.) 1947.
4. Arnold, H. L., Jr.: Erythema Multiforme Following High Voltage Roentgen Therapy: Review of Literature and Report of 3 Cases, Arch. Dermat. & Syph. **60**: 143 (Aug.) 1949.
5. Poth, D. O.: Tumor-like Keratoses: Report of Case, Arch. Dermat. & Syph. **39**: 228 (Feb.) 1939.

MacKee [5] wrote in 1921 that "A number of instances of vegetation occurring in the course of acute radiodermatitis of the second degree have been observed. The lesions developed just previous to the first signs of repair. They ranged in size from a lentil to a bean, were firm but not hard in consistence, yellowish red in color and presented a moist surface. They resembled the flat condyloma of syphilis. It is possible that the lesions consisted of an overgrowth of unhealthy granulation, and this hypothesis is probable because of their spontaneous disappearance in two or three weeks. They possessed the clinical appearance of proliferated epidermis (acanthosis) which, if true, would assume a proliferative type of acute radiodermatitis."

Ponthus and Orsoni [6] at the Cancer Clinic of Lyons, France, in 1947 reported a tumor seen by them at the border of the field of exposure to roentgen rays. The patients were treated for cancer of the pharynx and larynx with heavily filtered roentgen rays; at various times after the end of treatment tumors appeared, some fixed and some movable, at the border of the exposed fields. The object of their study was to determine the factors in treatment most apt to cause the tumors. In three patients given 300 r per day to a total of 5,000 r the tumors appeared at the end of the course of treatment. In others the lesions were delayed until the second to the tenth month after treatment was ended. Only a small percentage of their cases manifested this phenomenon. They found that production of the tumor at the border of roentgen radiation field is favored by: (1) an extended period of treatment; (2) a large total dose, and (3) the use of multiple fields. That these tumors arose on the apparently normal skin of the neck seems to me a justifiable assumption. It is regrettable that their structure was not studied and their fate was not recorded.

CASES FROM THE LITERATURE

Walter [7] recently reported tumors appearing on the skin of the neck of patients treated by filtered roentgen rays for malignant growth of the larynx, pharynx and cervical glands. They were given treatment through two parallel 8 by 6 cm. fields.

Case 1.—After receiving 3,450 r through each field a man aged 65 showed little change of the skin in seven weeks. Nineteen weeks after the end of the treatment there was a little atrophy, and in the middle of the field on the right side of the neck there was seen a 7 mm. nodule which, according to the patient, had been present five weeks. In another month it measured 9 mm. in diameter. It was then excised, and the pathologist reported that it was a "simple squamous papilloma." There was no recurrence 26 months later.

Case 2.—A man aged 72 received 3,900 r of filtered roentgen rays on the skin for treatment of a carcinoma of the hypopharynx with some hard nodes under the angle of the jaw on the right side. A biopsy of these showed squamous epithelioma, grade 2. As in case 1, the roentgen exposures were given through parallel fields, so that the skin received about the same dose as the tumor; after treatment each field showed moderate erythema. Eleven weeks after the treatment was ended a nodule 15 mm. in diameter was found in one of the fields and excised. The pathologist found "grade 1 squamous epithelioma, which appeared to be a primary skin growth." There was no recurrence of this tumor during the year before the patient died from his internal carcinoma.

Case 3.—A man aged 76 had hard, enlarged nodes in the neck, a biopsy of which revealed rather undifferentiated, malignant cells, primarily anaplastic, squamous carcinoma. The primary tumor was not found. These nodes were treated by the wedge method from two fields, each 8 by 6 cm., at right angles. The depth dose was 3,500 r and the skin dose about the same. Filtration in all these cases was 1 mm. of copper and 1 mm. of aluminum.

Seven weeks after the end of the treatment a nodule 2 cm. across was apparent at the lower part of the right cheek within the treated area, the skin of which showed no gross change. The patient thought that the growth had been present two weeks. Biopsy showed "a portion of a cornifying, grade 1 squamous epithelioma." This growth was treated with roentgen rays, filtered through 1 mm. of aluminum; 500 r was given twice a week to a total of 3,500 r in 23 days. A moist reaction followed, and the field was clear a month after the end of treatment.

All these growths were much alike, squamous lesions occurring 14, 11 and 5 weeks after the conclusion of high voltage roentgen therapy. Walter presented four hypotheses in explanation: 1. Lesions may be skin secondaries. These are usually subepidermal or subcutaneous. The tumors look like primary growths. In case 1 the histologic grade was lower than that of the primary lesion and in cases 2 and 3 it was lower than that of the secondary nodes. It is often said that metastases are always of the same grade as the primary tumor or of a higher grade. This is a strong argument against these being secondaries. 2. Lesions may be coincidental. If a microscopic skin tumor was present before the roentgen treatment, it should have been cured. If it began after the roentgen radiation the interval was exceedingly short. Tar applications have to be made for eight months to produce papilloma and for 10 months to start an epithelioma. Once they have begun they can grow rapidly. If this hypothesis were true cases like those reported by Walter should not be extremely rare; however, they do not seem to have been recorded. 3. Lesions may be late radiation effects. But these are due to overdosage, with gross and microscopic changes in the skin, dense fibrosis of the corium and thickening and obliteration of blood vessels. These were not present in Walter's cases. 4. Lesions may be early radiation effects. The action of roentgen rays on chromosomes produces mutations, thus starting new growths. If this were true such tumors should be common. My comment on this matter appears later in the article.

REPORT OF CASE

In the past I have noted small papules about the scars resulting from the cure by radiotherapy of epitheliomas. They were smooth topped, not tender, and cleared spontaneously in a few weeks or a couple of months.

History and Course.—Recently a man aged 77 had a senile keratosis on the back of his left hand. It had been present about 10 years; at several times during a hot summer it had become inflamed, itching and burning for several weeks, then returning to its usual passive condition. Recently during such attacks there had been oozing and subsequent crusting. There had been no trauma, chemical or physical, within several weeks, except a moderate amount of sunlight.

On inspection a fine elevated line was seen at one border of the keratosis, like that commonly present on erythematoid epitheliomas. The keratosis measured 10 by 13 mm. A radium plaque screened with 0.1 mm. of aluminum at 2 mm. distance was applied on July 7, 1949, delivering three erythema doses of radiation on an area 16 by 19 mm. On July 10, 1949 a

6. Ponthus, P., and Orsoni, D.: Sur l'apparition des ganglions à la limite du champ d'irradiation, à la suite d'un traitement roentgenthérapique, J. de radiol. et d'électrol. **28**: 67, 1947.

7. Walter, J.: Epithelioma and Papilloma Arising on Recently Irradiated Skin, Brit. M. J. **1**: 273 (Feb. 4) 1950.

similar dose was given. Within 14 days sharp erythema ensued, and the keratotic area oozed and developed a thin crust.

A few days later it was seen that the proximal edge of this crust was elevated; the height increased from day to day until Aug. 15, 1949, when the crust separated and a nodule about

Fig. 1.—Reaction six weeks after application of radium. The bulk of the lesion is fibrocellular and lies deep in the skin. Above it there is a focus of hemorrhage drying within a tear. The thick-walled artery at bottom center is shown in figure 4. As to radiodermatitis, one misses the atrophy of the epidermis and the capillary hyperplasia and vascular degeneration. In short, inflammatory processes alone could account for the features exhibited.

5 mm. high and 12 by 15 mm. in extent was seen. It was covered by smooth, deep red skin; it was firm and tender. On August 20 (six weeks after the radium had been applied) a punch biopsy specimen was taken from its center, and within two weeks the nodule had almost disappeared. The whole area on Oct. 20, 1949 showed only a smooth, thin scar.

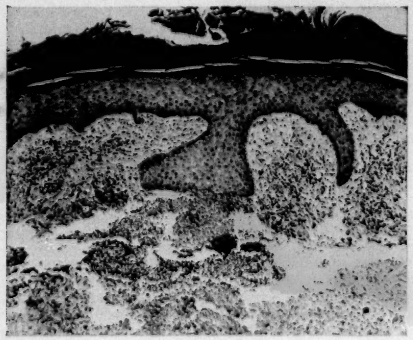

Fig. 2.—Illustrating absence of the degenerative and vascular changes in the epidermis such as characterize acute radiation dermatitis.

Biopsy.—Dr. Fred Weidman, who studied the sections, reported that the epidermis was irregularly acanthotic. The central parts of the section were covered by a thick stratum of parakeratotic material which was intermixed with a certain number of degenerated polymorphonuclears (crust). The rest of the epidermis was in a state of diffuse intercellular edema (figs. 1, 2 and 3). The significant pathologic processes obviously concerned the corium. The outstanding feature was fibrosis to the extent that practically all the normal collagenous architecture had disappeared. In the upper parts of the skin the connective tissue was loosely fibrillar as the result of edema, but at the bottom of the section the fibrous tissue was dense and hyaline, like that of a tendon or aponeurosis.

Evidence of more or less acute inflammatory reaction was indicated by additional features. A region of fibrinous infiltration (confirmed by Weigert's fibrin stain) lay toward the bottom of the section, the reticulum of which was clearcut. In it, moderate numbers of polymorphonuclear leukocytes appeared, together with a few free red blood cells and an occasional eosinophilic leukocyte. The capillaries in the papillae were hyperplastic and congested almost to the point of telangiectasia. The predominating inflammatory cell was the plasma cell, which was distributed in relationship to blood vessels throughout the corium but tended to be congregated in certain localized regions; degenerated polymorphonuclear cells were accentuated in such localized foci. These infiltrative phenomena extended to the stroma of the sweat glands.

Fig. 3.—Edematous fibrocellular tissue, largely plasma cells.

The one or two arterioles at the bottom of the section were almost obliterated as the result of the fibrous thickening of their walls, and in one of them it was possible to recognize a new formation of capillaries, such as happens in an organizing thrombus (fig. 4). Capillaries were highly hyperplastic everywhere, particularly in the special regions of plasma cell infiltration. Their lining endothelia were swollen but not significantly hyperplastic. The large spindle or stellate cells, which were sparingly distributed throughout the section, were regarded as of endothelial nature[8] or perhaps histiocytic (cells with basophilic cytoplasm and huge round nuclei).

Histologic Summary and Comment.—The tissue showed a chronic fibrous reaction, which was probably due to repeated inflammatory insults. The insults were of a severe type, as indicated by the presence of fibrin and polymorphonuclear leukocytes. The organizing thrombus suggested a hematogenous origin, although the evidence was not quite decisive.

8. Beginning buds of newly formed capillaries?

As to the particular clinical dermatologic entity which would fit in with this picture, rheumatic fever and syphilis appeared to be excluded because the inflammatory phenomena were too intense—the fibrin in particular and the leukocytes and hemorrhage to a lesser extent. The possibility was considered that these acute features were secondary to extraneous features such as trauma or chemical manhandling, and these possibilities could not be eliminated. Only the clinical observations could settle this point.

After Dr. Weidman had recourse to the clinical notes, the situation was clarified in respect to the fibrosis, the capillary hyperplasia and the large endothelial cells. He was still at a loss to explain the acute inflammatory phenomena. Keratosis was decidedly in the background; there was nothing to fear from the epithelial signs. The only occasion for concern in respect to malignancy was in connection with the large endothelial cells, but they were considered to be not malignant in type but reactive.

Fig. 4.—Obliterative organized thrombus in an artery.

Conclusions from a Histological Point of View.—Papules or nodules which appear in the periphery of an irradiated focus are not necessarily neoplastic. They can be due to an inflammatory reaction that is of extremely acute, fibrinous type. Their cause is not established. However, in the present case irradiation was not indicated as the cause because capillary hyperplasia was not outstanding and because the epidermal cells did not undergo the vacuolization and degeneration of an acute roentgenologic dermatitis. The obliterating endarteritis (followed by necrosis?) may have been the determining factor, but its full role could not be stated.

COMMENT

The histological picture presented an interesting parallel to the clinical observations of MacKee. He wrote of the resemblance of the lesions he had observed to the flat condyloma of syphilis. If I had kept the site under ointment dressings, preventing a crust formation, this nodule might have shown a clinical resemblance to syphilitic condyloma. The great abundance of plasma cells and the involvement of arterioles likewise suggested syphilis.

The comment made by Weidman in discussion of Poth's case is interesting. He remarked that "the history of previous attacks, in which the lesions spontaneously disappeared, recalls the 'habit' of tar cancer. Here is another link between the action of light upon the skin and the chemicals such as arsenic and tar."

Evidently this type of lesion is caused by a stimulus which acts on blood vessels and the cells of the skin, both malignant and normal. The somewhat abnormal cells of the keratosis are more sensitive to ultraviolet and still shorter wave lengths, and if the light is strong enough they are killed. The more resistant normal cells are severely deranged, take the bizarre form found by Dr. Weidman and either slowly regain their health or die, to be replaced by those less damaged. The occurrence of the papules and nodules at the border of the irradiated area may have been due to a lesser intensity of radiation there.

Of the four hypotheses of Walter the last is the only one that appeals to me. In my opinion such growths occur every now and then but are passed over by radiologists as of no consequence and not reported because these clear spontaneously or are treated as Walter did and counted as cured malignant lesions. I believe that a study of these growths will show, as in the case reported here, that they are benign and self limited. Perhaps the report of the pathologist that these tumors were grade 1 malignant lesions was due to his anxiety not to overlook any such danger.

It may be that, in accord with Dr. Weidman's suggestion, arterial occlusion in the lower dermis was the cause of the lesion in the present case. Was not that a result of radiotherapy? Certainly strong light has been a factor in all these cases.

SUMMARY

Several forms of extraordinary reaction to light have been reported over a period of years. The present paper presents a histological study of a benign tumor subsequent to treatment with hard beta rays. Further studies of such growths, which are not common, should be made.

Polio Virus in Muscle.—The data indicate that active virus may be present in the paralyzed muscle of human cases of poliomyelitis, at least during the acute stage of the infection. Considering the comparatively small number of patients examined, and the limitations imposed by the admittedly crude technic used, it would not appear unreasonable to expect that systematic search may yield a higher percentage of isolations of virus. It seems of special significance that the agent recovered from this patient apparently was capable of producing experimentally both central nervous system lesions and lesions in the peripheral skeletal muscle as well as in the heart muscle. In other words, the freshly isolated virus possessed neurotropic as well as viscerotropic properties. This observation, if confirmed, would tend to bridge the gap that exists at present between the classical neurotropic poliomyelitis virus and such poliomyelitis-like agents as Columbia SK virus and Coxsackie virus, which combine neurotropic and viscerotropic properties in varying proportions.—Claus W. Jungeblut, M.D., and Marvin A. Stevens, M.D., *American Journal of Clinical Pathology*, August 1950.

DISSEMINATED MYCOTIC DISEASE

Report of Three Cases

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Certain fungi are pathogenic to man, but only a few appear capable of invading deeper structures. Actinomycosis, blastomycosis, coccidioidomycosis, histoplasmosis, torulosis, moniliasis and sporotrichosis represent a group of mycotic diseases which occur in the United States and which may become disseminated, often terminating fatally. Infection may disseminate by direct extension to adjacent tissues or by the lymph or blood stream to remote parts of the body to involve any number of internal organs, including the central nervous system. The resulting syndromes resemble many other disease states commonly involving these structures, making the diagnosis of generalized mycotic diseases at times difficult and often entirely unsuspected. Diagnosis is possible by finding the causative organism in body fluids, sputums, exudates, purulent discharges or biopsy specimens from involved tissues when available. Within the past few years three cases of generalized mycotic infection have come to my attention and are herewith presented.

DISSEMINATED TORULOSIS

CASE 1.—*History and Clinical Course.*—A cervical adenopathy developed in 1938 in a 26 year old white man, at which time a biopsy of one of the nodes resulted in a diagnosis of reticulum cell sarcoma. High voltage roentgen therapy resulted in pronounced improvement with regression of the glands and without apparent recurrence.

He was found physically fit and was inducted into military service in February 1941. After being exposed to rain while on maneuvers in November 1941, he became suddenly ill with acute left pleuritis and pronounced effusion and was also found to have generalized lymphadenopathy and moderate splenomegaly. A diagnosis of Hodgkin's disease was made from an axillary lymph node biopsy, and considerable improvement again resulted from high voltage roentgen therapy.

After his separation from the Army his condition progressively became worse, so that by June 1942 headaches of increasing severity, projectile vomiting, increasing loss of weight, weakness and visual difficulty developed. When he was admitted to the Veterans Hospital in September 1942, there were present generalized lymphadenopathy, moderate splenomegaly, moderate nuchal rigidity and bilateral papilledema of 2 to 3 D. It was thought he had Hodgkin's disease with cerebral involvement. He was soon transferred to Mayo Clinic, where a review of previous biopsy sections was made. Because of high grade choked disks, lumbar puncture was not done, and he died while receiving a course of high voltage roentgen therapy to the skull for what was believed to be cerebral Hodgkin's disease.

Pathology.—Lymph node biopsies were taken on four different occasions from the neck, axilla and the postauricular area. In 1938, the diagnosis of reticulum cell sarcoma was made; whereas in December 1941, while the patient was in military service, a diagnosis of Hodgkin's disease of the lymph nodes was made. Two biopsy specimens obtained after roentgen therapy, in February and March 1942, were confusing because of an autolytic state of the tissues and loss of histological detail. A review of the biopsy made in December 1941 was therefore made, confirming the diagnosis of Hodgkin's granuloma of the lymph nodes. In the specimen obtained then the normal follicular architecture of the node was replaced by a diffuse mixture of lymphocytes, large reticulocytes with multilobed nuclei, rare multinuclear giant cells, an occasional plasma cell and few eosinophils. There was a loose reticular fibrous meshwork supporting the cells with an occasional mitosis in the reticulocytes. The reticulocytes seemed to play the predominant role, giving merit to the original diagnosis of reticulum cell sarcoma made in civilian life.[1]

At necropsy a large number of granulomatous-like lesions were seen scattered throughout the internal organs, particularly in the lungs and spleen. Histological examination of lesions revealed the presence of systemic torulosis, the yeast-like organisms being observed also in the meninges and beneath the cortex of the brain localized about the blood vessels.[2]

It is practically impossible to say what the source of Torula infection was or what its relation was to the previous diagnosis of reticulum cell sarcoma and Hodgkin's disease. It is possible that this case may have been

Fig. 1.—Necropsy brain specimen, left frontal lobe, low power, showing meninges and cortex with Torula histolytica organisms in giant cells and free in the subarachnoid space. Best-Bodian stain.

one of torulosis in the beginning and that organisms of Cryptococcus neoformans were not present in the biopsy specimens obtained.

DISSEMINATED HISTOPLASMOSIS

CASE 2.—*History and Clinical Course.*—A 36 year old white man gave a history of having had diarrhea since childhood, occasionally associated with episodes of nausea and vomiting. In 1943 he became ill with pneumonia, which left him with a chronic productive cough. When admitted to the Veteran's Hospital in September 1948, he complained of persistent diarrhea, abdominal cramping pain, nausea and vomiting, generalized muscle and joint pains and productive severe paroxysmal cough.

Examination revealed him to be chronically ill, emaciated, weak, apprehensive and nervous. A draining lesion was present on the anterior right mandible at the site of a recent tooth extraction, and a roentgenogram of this structure revealed an

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1. This information was obtained from the Army service records of this veteran.

2. Drs. L. M. Eaton and J. W. Kernohan and the Mayo Clinic, Rochester, Minn., supplied the necropsy protocol and sections of tissue.

area of radiolucency. A roentgenogram of the chest revealed an infiltration at the base of the upper lobe of the right lung with a single area of radiolucency suggestive of cavitation. Roentgenograms of the gastrointestinal tract revealed a napkin ring constriction at the cecal area and at the rectosigmoid junction, in addition to a shallow ulcer crater at the midportion of the descending colon.

Pathology.—Proctoscopic examination disclosed a granulomatous, friable bleeding mass 2½ in. (6 cm.) above the anal sphincter. Histological examination of biopsy specimens from the oral and rectal lesions revealed the tissue to be granulomatous with myriads of large multinucleated phagocytic cells containing Histoplasma capsulatum.

At necropsy there was found to be severe widespread involvement of all of the internal organs and lymph nodes, the pharynx and oral cavity; the brain and meninges were involved to a lesser extent. A large abscess cavity, measuring 2.7 cm. in diameter, was found at the base of the upper lobe of the right lung. Numerous discrete abscesses, of millet seed size, were present elsewhere throughout the lungs and other organs. Extensive ulcerations with serrated undermined edges were present throughout the bowel. Histologically the lesions were similar to those found in the biopsy specimens.

Fig. 2.—Necropsy brain specimen, high power demonstrating Torula organisms in giant cells within the meninges. Hematoxylin and eosin stain.

The onset of histoplasmosis in this patient is unknown. That diarrhea with occasional episodes of nausea and vomiting existed since childhood is definitely established. The pneumonia in 1943 may have been related to dissemination of the infection to his lungs. It is known, however, that victims sometimes die within a few months of infection, but in this case the true onset of the disease is unknown.

DISSEMINATED MONILIASIS

CASE 3.—*History and Clinical Course.*—A 27 year old white man worked as a leather cutter in a boot factory since November 1945. His illness began in January 1948. Because of recurrent episodes of severe right upper abdominal pain radiating to the epigastrium and right costovertebral angle associated with almost daily bouts of chills and temperature increases to 104 F. followed by drenching sweats, he was hospitalized on March 30, 1948, for what was believed to be acute pancreatitis.

On admission he appeared acutely ill with severe right upper abdominal pain. The right upper abdominal quadrant was rigid, giving a sense of fulness, and there was rebound tenderness to palpation. The temperature was 103 F., pulse rate 114, respirations 20 and blood pressure 120/80. He continued to suffer from episodes of right upper abdominal pain and septic fever. Serial roentgenograms of the chest revealed at first a left apical infiltrate and later an infiltrate involving both apexes, gradually increasing in size and intensity. At one time a ballotable mass was thought to be palpable in the right upper abdominal quadrant, but it soon disappeared.

Fig. 3.—Biopsy specimen of rectal mass showing the lesion to be granulomatous, with myriads of histiocytes containing Histoplasma capsulatum organisms.

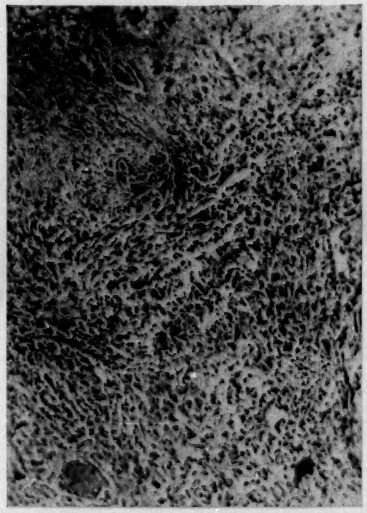

Fig. 4.—Necropsy specimen of the lung showing an area of caseation necrosis (upper left) surrounded by chronic inflammatory cells (center) and a giant cell (lower left corner).

Two months after admission increasingly severe headaches developed, soon associated with muchal rigidity and vomiting. Culture of the spinal fluid on Sabouraud's mediums disclosed yeastlike organisms morphologically resembling Candida albicans. Blood cultures were also positive for this organism at this time. The patient died June 14, 1948.

Pathology.—Necropsy disclosed involvement of all the internal organs, particularly the lungs, liver, lymph nodes and meninges. Considerable thick, tenacious, creamy material was present in the pulmonary bronchial tree, and numerous small abscesses were scattered throughout the lungs. There was pronounced inflammatory reaction in the leptomeninges and extensive liquefaction of brain substances.

Histological examination revealed the lesions to be granulomatous, characterized by chronic inflammatory reaction, consisting of lymphocytes, epithelioid cells and numerous multinuclear giant cells largely of the Langhan's type, the larger granulomas possessing caseous centers often undergoing liquefaction and abscess formation. In the meninges, numbers of yeastlike organisms and hyphae typical of Candida albicans were seen.

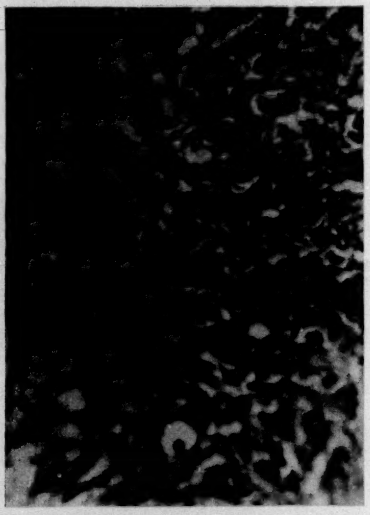

Fig. 5.—Necropsy specimen of the lung, high power, demonstrating the organisms of Candida albicans.

SUMMARY

Three fatal cases of disseminated mycotic disease are presented; in two of them the diagnosis was made ante mortem. Dissemination involved almost all the internal organs and the central nervous system. In each case the lesions were grossly granulomatous and on histological examination there was variable inflammatory reaction often with a tendency to central necrosis, liquefaction and abscess formation in the larger granulomas. The case of generalized torulosis presented particular difficulty, and the true nature of the disease was entirely unsuspected but was disclosed at necropsy.

CONCLUSIONS

1. Disseminated mycotic diseases can mimic many disease states because of widespread involvement of the internal organs and the central nervous system.

2. In patients dying from some obscure disease, generalized mycotic infection should be given consideration as a possible diagnosis.

3. Though diagnosis may be extremely difficult at times, it may be made by observation of the causative organism in body fluids, sputums, exudates, purulent discharges or biopsy specimens from involved tissues.

4. Apparently other diseases can erroneously become implicated even on biopsy, as in the case of disseminated torulosis.

NONSPECIFIC BENIGN PERICARDITIS

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When an essentially benign disease is confused with a malady which has grave prognostic implications, the patient suffers. This statement is particularly potent when so-called nonspecific benign pericarditis is given the far more ominous label of coronary thrombosis. The emotional trauma, the alteration of life and the economic strain which are natural consequences of diagnosis of coronary thrombosis should not be inflicted on any patient without true cause. Since on casual evaluation there are many similarities between the two conditions and since there continues to be confusion in establishing the correct diagnosis, it seems appropriate to emphasize again the particular characteristics of nonspecific benign pericarditis and its differentiation from coronary thrombosis.

In 1933 Bing [1] reported a type of acute pericarditis not previously identified. The term epidemic pericarditis was used by him to imply its probable infectious nature. Willius [2] in 1934 reported a group of patients with acute serofibrinous pericarditis apparently occurring as a complication of acute pharyngitis. In 1942 Barnes and Burchell [3] reported a series of cases in which they emphasized that this condition may simulate coronary occlusion and presented their differential diagnosis. Since 1942 others [4] have reported similar observations and conclusions. It is the general opinion that this type of pericarditis is inflammatory in nature and infectious in origin and unlikely that the etiological basis is either rheumatic or tuberculous. All reports have emphasized the relatively benign course of the disease and the apparent absence of residua.

We have reviewed our records of 219 patients with diagnoses of acute pericarditis of varying etiological types. There were 14 patients whose symptoms and clinical course were sufficiently characteristic and consistent to justify placing them in a special category of nonspecific benign pericarditis. A diagnosis of angina pectoris or coronary occlusion was tentatively made in 8 of the cases and mentioned as a possibility in 100 per cent. The occurrence of friction rub, fever, acceler-

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1. Bing, H. I.: Epidemical Pericarditis, Acta. med. Scandinav. **80**:129-33, 1933.

2. Willius, F. A.: Cardiac Clinics: Clinic on Acute Serofibrinous Pericarditis Secondary to Acute Pharyngitis: Comment; Treatment, Course, Proc. Staff Meet., Mayo Clin. **9**: 637-640 (Oct. 17) 1934.

3. Barnes, A. R., and Burchell, H. B.: Acute Pericarditis Simulating Acute Coronary Occlusion: Report of 14 Cases, Am. Heart J. **23**: 247-266 (Feb.) 1942.

4. Wolff, L.: Acute Pericarditis Simulating Myocardial Infarction, New England J. Med. **230**: 422-425 (April 6) 1944. Massey, F. C.: Acute Pericarditis Simulating Myocardial Infarction, Northwest Med. **46**: 455-459 (June) 1947.

ated sedimentation rate and abnormality of electrocardiogram in all these cases resulted in superficial similarity between the two conditions. All patients survived the acute episode, and none have shown residual disease over a follow-up period varying from 14 years to nine months. Because of this great dissimilarity in immediate and ultimate prognosis, the importance of differentiating nonspecific benign pericarditis from coronary occlusion is obvious. Two illustrated cases are reported in detail.

REPORT OF CASES

CASE 1.—*History.*—W. P. E., a white man aged 33, was admitted to a hosiptal at 1:00 a. m. Nov. 11, 1948 because of substernal and precordial pain which began about 3:30 p. m. November 6, when he was examined by a physician for this condition.

Physical Examination.—The temperature was 101 F., and the physician also noted a "murmur" which he thought was a pericardial friction. On November 11 about 11:00 p. m. the patient was again seen because of the precordial pain, which had increased in intensity. The physician was convinced that the patient had acute coronary occlusion. Morphine and nitroglycerin (glyceryl trinitrate) gave the patient some relief, but he became extremely fearful when told that he had a "heart attack." He became pale and sweaty. His blood pressure fell

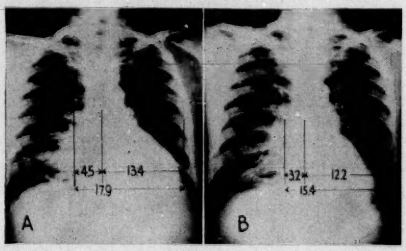

Fig. 1 (case 1).—Teleroentgenograms illustrating the cardiac silhouette: *A*, Nov. 29, 1948 the cardiothoracic ratio was 55.6 per cent; *B*, Jan. 19, 1950, after pericardial aspiration on Dec. 3, 1949 of 160 cc. of fluid, the cardiothoracic ratio was 48.4 per cent.

to 60 systolic and 20 diastolic, with a heart rate of 40 per minute.

He promptly recovered from the syncopal episode after the parenteral administration of 1/100 grain (0.6 mg.) of atropine sulfate. Obviously the episode was not shock but vasovagal syncope induced by great apprehension and substernal pain. At 8:00 a. m. November 12 the blood pressure was 106/70 and the temperature 101 F. Pericardial friction rub was heard over the entire precordial area.

Treatment and Course.—The patient continued with fever (varying from 99.2 to 103 F.) until Dec. 3, 1948. During the entire period of illness anterior chest pain varied in intensity but was present for approximately three weeks. On Nov. 29, 1948 roentgen examination of the chest showed considerable enlargement of the cardiac shadow (fig. 1 *A*). The patient was examined by one of us (W. B. P.) on Dec. 3, 1948. A pericardial friction rub was present. The temperature was 100 F. The leukocyte count was 11,000, with 78 per cent polymorphonuclear cells. The sedimentation rate (Cutler) was 36 mm. per hour. The physical observations confirmed the impression of pericardial effusion. Pericardial aspiration removed 160 cc. of serohemorrhagic fluid; the cell count was 1,180, with 68 per cent polymorphonuclear cells, protein content 2,860 mg. per 100 cc. and a hemoglobin trace (?). Cultures of the fluid were negative, and a guinea pig remained well after inoculation.

Numerous electrocardiograms were made (fig. 2). Except for minor S-T changes suggestive of acute pericarditis nothing characteristic of myocardial infarction developed. When the patient was seen in consultation Dec. 3, 1948, streptomycin 0.5 Gm. every eight hours was substituted for penicillin therapy (300,000 units a day), started November 26. The temperature became normal in 72 hours, and clinical improvement was rapid. It is possible that the improvement was coincidental and in no way related to the streptomycin therapy. The patient was restudied in January 1950. He was a robust and healthy man without symptoms. The roentgenogram of the heart (fig. 1 *B*) and the electrocardiogram disclosed normal conditions. It was concluded that the original diagnosis of coronary occlusion was not tenable and that recovery from the pericardial disease was complete.

CASE 2.—*History.*—R. H. O., a man aged 37, was admitted to the Medical College of Virginia Hospital Oct. 17, 1949 and discharged Nov. 12, 1949. For four days prior to his admission to the hospital he had experienced substernal pain in the lower sternal area and some epigastric discomfort. The pain was accompanied with deep substernal soreness. He had a non-

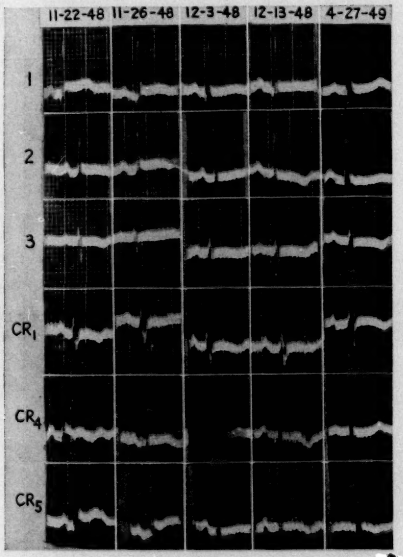

Fig. 2 (case 1).—Serial electrocardiograms on W.P.E., showing elevation of S-T intervals in leads 1,2, CR_4 and CR_5 on Nov. 22, 1948. By Dec. 13, 1948 the S-T intervals had returned to the isoelectric with low T wave in lead 1 and inverted T waves in leads 2, CR_4 and CR_5. By April 27, 1949 the tracing had returned to normal except for some lowering of the T wave in leads, 2, CR_4 and CR_5.

productive cough, which he attributed to a cold that began three days prior to the onset of his present and chief complaint. The cough definitely aggravated his substernal pain, which at times was severe and disturbed his sleep. He stated that his symptoms were quite similar to the chest pain and soreness he once had when his sternum was injured while he was playing football. There was no radiation of pain to either arm, but pain in the left axilla and left suprascapular area of 12 hours' duration was aggravated by respiration. He and his physician were certain that his illness was due to acute coronary occlusion.

Physical Examination.—The patient was a well developed man, apprehensive and obviously exceedingly uncomfortable. The temperature was 102.3 F., the pulse rate 102, the respiratory rate 22 and the blood pressure 110/72. The nasopharynx showed moderate congestion but no exudates. The lungs were normal except for a moderate restriction of expansion of the

left side of the thorax and a suggestive pleural friction in the left lower axillary area. The area of absolute cardiac dulness was increased, and the left cardiac border was increased to the left. The apex was seen and felt in the fifth interspace inside the midclavicular line and 3 cm. inside the left area of precordial dulness. A harsh friction rub was heard over the entire precordial area. The initial blood count was 12.6 Gm. hemoglobin, 3,900,000 red blood cells and 13,100 white blood cells, with polymorphonuclear leukocytes 80 per cent, eosinophils 1 per cent, lymphocytes 16 per cent and monocytes 3 per cent. The sedimentation rate (Cutler) was 26 mm. in one hour. Blood cultures were negative. Agglutination tests for typhoid-paratyphoid, brucellosis and tularemia were negative. The urine was normal with the exception of albumin (1 plus) and occasional granular casts. The tuberculin test was negative.

Treatment and Course.—The patient's clinical course was characterized by continued fever (varying from 100.2 F. to as high as 103 F.) during the first week of his illness. During this period substernal pain in the area already described continued; the friction rub became more obvious and continued for approximately eight days. The roentgen studies showed increase in the cardiac shadow suggestive of a moderate-sized pericardial effusion (fig. 3*A*). On October 24 a pericardial tap was done and 110 cc. of serosanguineous fluid was removed without difficulty. The patient said that he felt better after this procedure, although the friction rub was still present on the following day. The fluid showed a white blood cell count of 1,360, with 90 per cent polymorphonuclear cells and 10 per cent lymphocytes. The hemoglobin level was 0.15 Gm. and the protein content 3,400 mg. per 100 cc. The fluid was sterile to all types of cultures, and a guinea pig injected with the fluid remained well. On October 24 administration of streptomycin was started, 0.5 Gm. three times a day. On October 28 the temperature was normal and the roentgenogram showed a cardiothoracic ratio of 47 per cent (fig. 3*B*). The serial electrocardiogram is shown in figure 4.

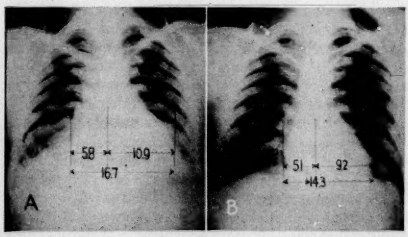

Fig. 3 (case 2).—Teleroentgenograms illustrating the cardiac silhouette: *A*, Oct. 23, 1949 the cardiothoracic ratio was 55.1 per cent; *B*, Nov. 12, 1949, after pericardial aspiration of serosanguineous fluid, the cardiothoracic ratio was 47.7 per cent.

The patient continued to improve, and when he left the hospital Nov. 12, 1949 his temperature had been normal for nine days and he was apparently entirely well. He has been followed since, and there appear to be no residua. The case typically illustrates the clinical syndrome of nonspecific benign pericarditis from both the standpoint of confusing symptoms and that of benign prognosis.

COMMENT

Pain.—Pain is the most consistent subjective symptom of nonspecific benign pericarditis and is the symptom that causes most confusion of the condition with coronary artery thrombosis. Pain was present from the onset in 100 per cent of the patients in this series. It was the essential symptom requiring relief and in most instances was the symptom which caused the greatest concern to both patient and physician. The character of the pain varies from patient to patient and also from day to day. In four patients the pain was described as "sharp and knifelike," in seven as "dull" and in three as "crushing." The intensity varied greatly but was always sufficient to require remedial medication.

Anxiety associated with the pain greatly adds to the confusion and in some patients may result in such intense apprehension that a shocklike syndrome develops. The pain is located over the lower two thirds of the sternum and for 2 to 3 cm. lateral to the sternal margins. It may radiate to the left shoulder (probably phrenic nerve involvement), but we have not observed consistent left arm or ulnar nerve radiation (fig. 5*A*). Accompanying the pain is a severe, deep, substernal soreness, similar to that felt after physical injury to the sternum. Both pain and soreness are aggravated by respiration, cough and physical movements of the thorax; this aggravation is not a characteristic of the pain associated with coronary thrombosis.

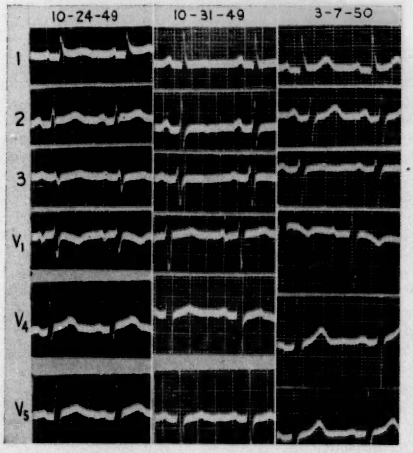

Fig. 4 (case 2).—Serial electrocardiograms on R.O. showing elevated S-T intervals in leads 1,2,V_4 and V_5 on Oct. 24, 1949. By October 31 the S-T intervals had returned to the isoelectric with low or slightly inverted T wave. By March 7, 1950 the tracing had become normal.

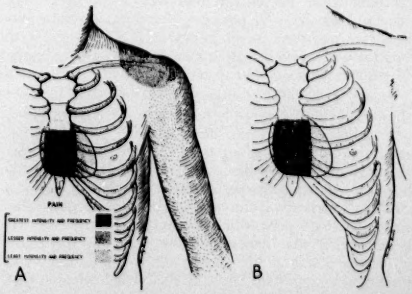

Fig. 5.—*A*, usual area of pain varying intensity; *B*, area of extensive pericardial friction occurring in most patients.

Symptoms of cold, sore throat or influenza-like infection preceded the onset of pain in all of the patients for a period that varied from three to fourteen days.

The pain probably arises from involvement of the parietal pericardium and the anterior mediastinum in most patients. Occasionally pleuropericarditis is an added cause of pain. Although there is involvement of the subepicardial myocardium (as evidenced by the electrocardiogram), it is not believed that this would give rise to the type of pain encountered.

There is still much uncertainty about the nerve supply to the pericardium, but it is quite certain that pain impulses from the parietal pericardium and anterior mediastinum would be mediated over the phrenic and thoracic spinal nerves and would give rise to pain sensations different in character from those of myocardial infarction, which are mediated over the sympathetic pathways.

Pericardial Friction.—Pericardial friction accompanies the pain from the beginning of the illness. It is audible over the anterior precordium (fig. 5 *B*) and may last from several days to as long as two weeks. The occurrence of friction at the onset of pain is a major point in differentiation of benign pericarditis from coronary occlusion, in which the friction rub does not appear for 12 to 24 hours after the onset of pain. Likewise, the extent and duration of the friction rub in pericarditis is in bold contrast to the transient nature and local extent of the friction rub in coronary occlusion.

From the onset of illness fever is a consistent clinical manifestation of nonspecific benign pericarditis. The temperature varied from 100 F. to as high as 103 F. In this series of patients the duration of fever varied from three to 22 days, the temperature returning to normal by lysis. The presence of fever with the beginning of pain is in bold contrast to the later occurrence of fever in myocardial infarction.

The leukocyte count varied from 8,000 to 14,600 per cubic millimeter. With the higher counts the polymorphonuclear percentage was moderately increased, varying from 78 to 91 per cent. Accelerated sedimentation rate occurred in all patients. The elevated rate was known to persist from two to eight weeks in the 11 patients who were adequately followed.

Heart Size.—Teleroentgenograms on eight patients showed obvious increase in heart size. In four of these, pericardial effusion was demonstrated by pericardial aspiration. A detailed study of the teleroentgenograms shows a great variation in the size of the cardiac silhouette. In some the pericardial effusion was obvious, while in others the differentiation of increase of cardiac size from small pericardial effusion was impossible. It is our belief that cardiac dilatation is not the cause of increased size of the cardiac silhouette, as Levy and Patterson [5] suggested, but that pericardial effusion best explains roentgenologic evidence of increase in cardiac size. We cannot believe that so high a ratio of cardiac dilatation could exist in the absence of gallop rhythm, with electrocardiograms that fail to show diffuse myocardial disease, with complete absence of either heart failure or serious arrhythmia and with consistent and complete recovery of the patient.

Pericardial Exudate.—Pericardial aspiration was done in four cases. The amount of fluid aspirated varied from 90 to 160 cc. The fluid removed was serohemorrhagic in all instances. In three of the patients the aspiration was done by one of us (W. B. P.). It is our conviction that the hemorrhagic character of the fluid was not the result of needle trauma. In one patient 550 cc. of pleural exudate was removed from the left pleural space. The fluid was serohemorrhagic, similar to the 110 cc. of pericardial exudate removed from the pericardial sac. All fluids were sterile both to culture and animal inoculation. Virus cultures were not made.

Electrocardiographic Changes.—The electrocardiogram in nonspecific benign pericarditis shows characteristic changes in the majority of cases. These changes consist initially of an elevation of the S-T segments with upright T waves. This elevation persists for a period of several days to a week or more and then gradually returns to the isoelectric line concomitant with the development of low, flat or frankly inverted T waves. These changes may be present in two or more leads, depending chiefly on how many leads are used. We have seen such changes in as many as 10 leads of a routine 12 lead electrocardiogram, being present in leads 1, 2, 3, aV_L, aV_F and V_2 through V_6. There is never the reciprocal depression of the S-T segments or the development of Q waves that are seen in myocardial infarction. In most instances there is complete return of these changes to normal after a period of weeks or months, but in other cases slight abnormalities of the T waves may persist for years.

All cases do not show these characteristic electrocardiographic changes. In some the changes are minor and of nondiagnostic significance. In others there may be no apparent alterations in the electrocardiogram, at least during the initial period of the illness. Later there may develop some lowering or inversion of the T waves. Even this absence of electrocardiographic change is of some differential diagnostic value, especially when associated with a pericardial friction rub. When a normal 12 lead electrocardiogram is obtained on a patient having a pericardial friction rub, there can be no doubt that the patient has pericarditis rather than myocardial infarction.

The changes are believed to be due to involvement of the subepicardial myocardium by the process that is going on in the pericardium. This appears to be the only logical explanation at the present time. The extent of this myocardial involvement varies from case to case; this no doubt explains the variation in the degree of electrocardiographic changes. There may be extensive myocardial involvement resulting in striking and extensive alterations in the electrocardiogram. There may be little or no myocardial involvement, in which case the electrocardiogram will be normal. At one time the pressure of the pericardial effusion was thought to embarrass the coronary circulation and consequently to give rise to myocardial ischemia with resulting electrocardiographic changes. However, we have withdrawn the pericardial fluid and relieved the pressure within the pericardial sac without producing any change in the electrocardiographic pattern.[6] This

5. Levy, R. L., and Patterson, M. C.: Acute Serofibrinous Pericarditis of Undetermined Cause: Study of 27 Cases, Am. J. Med. **8**: 34-45 (Jan.) 1950.

6. Porter, W. B.: Acute Pericarditis, in Stroud, W. D.: Diagnosis and Treatment of Cardiovascular Disease, ed. 3, Philadelphia, F. A. Davis Company, 1945, pp. 282-341, vol. 1.

tends to rule out pressure in the pericardial sac as a cause of the electrocardiographic changes. This is further supported by the fact that an embarrassed or insufficient coronary circulation would produce depressed rather than elevated S-T segments.

Other Diagnostic Considerations.—Obviously the occurrence of "primary" pericarditis creates concern as to its tuberculous basis. In many respects acute benign pericarditis superficially has many similarities to tuberculous pericarditis, particularly if pericardial effusion develops in significant volume. A review of data on a large number of patients bacteriologically proved to have tuberculous pericarditis reveals a conspicuous absence of precordial pain.[6] Moreover, the effusion in tuberculous pericarditis tends to become large in amount and to recur after repeated aspirations, whereas in acute benign pericarditis the effusion tends to subside spontaneously or does not recur after aspiration. It is obvious that aspirated exudates should be completely studied for all types of pathogenic bacteria.

In none of the patients in this series was the diagnosis of rheumatic heart disease seriously considered. It is our conviction that in acute benign pericarditis the pericardial disease is the principal and primary disease, whereas in rheumatic pericarditis all available data convincingly suggest that the pericarditis is a part of pancarditis. It should be noted, however, that both diseases frequently have accelerated sedimentation rates over a prolonged period after other clinical data suggest complete return to an inactive state. Only in this respect are the two diseases similar.

All observers have been impressed with the favorable prognosis, both immediate and late, in nonspecific benign pericarditis. Our experience with these patients convinces us that the disease is benign and that complete recovery can be expected. It is possible that pericardial adhesions may occur after healing of the pericardium, yet no one has reported a patient in whom there developed the syndrome of constrictive pericarditis as an aftermath, although a large number of patients have now been followed for 10 or more years.

Streptomycin was used in the treatment of three patients. There appeared to be specific therapeutic effects in these patients. Many more patients must receive similar treatment before one can evaluate this form of antibiotic therapy.

CONCLUSION

1. Precordial and substernal pain is the most significant subjective symptom of nonspecific benign pericarditis. This symptom is responsible for the frequent erroneous diagnosis of coronary artery thrombosis.

2. A pericardial friction rub is the most significant physical phenomenon. It is present from the onset of pain, is heard over a wide area and frequently lasts for a week or longer.

3. If a friction rub is heard over the heart in a patient who has suffered a coronary occlusion, it signifies that myocardial infarction has resulted. However, if the electrocardiograms fail to show characteristic changes of myocardial infarction, acute pericarditis is the most tenable diagnosis.

4. The increased size of the cardiac shadow is best explained by the varying amounts of pericardial effusion.

5. The immediate and remote prognosis of nonspecific benign pericarditis is consistently good.

ABSTRACT OF DISCUSSION

DR. ARLIE R. BARNES, Rochester, Minn.: Although information concerning the facts required for the diagnosis of nonspecific benign pericarditis has been available to the members of the medical profession since 1942, the erroneous diagnosis of acute myocardial infarction continues to be made too often. A number of clinical facts should cause the clinician to be alert to the possible existence of this form of pericarditis. Acute benign pericarditis rather than acute coronary occlusion is indicated by the absence of hypertension and of an antecedent history of angina of effort, also by the average age of the patient—less than 40 years in cases of acute benign pericarditis and 57 years for acute coronary occlusion. The pain of acute benign pericarditis may be intermittent and lancinating in character, sometimes much less severe than that of coronary occlusion, and may recur for one to three weeks. Important clues to the diagnosis of pericarditis are aggravations of pain by deep breathing, by rotation of the trunk and, not infrequently, by swallowing. In contrast to acute coronary occlusion, fever, elevation of the sedimentation rate and a friction rub may be observed from the day of onset of pain. Once pericarditis is suspected, careful attention to changes in serial electrocardiograms will serve to differentiate these two conditions. I emphasize the word "serial." Continued observations of patients by me and my colleagues confirm our original conclusion: that acute benign pericarditis has an excellent immediate prognosis and does not leave significant residual cardiac damage. Recurrent attacks of pericarditis have not modified this prognosis. One of my patients has had six attacks. Cardiac enlargement occurs frequently among patients with acute benign pericarditis in striking contrast to the absence of cardiac enlargement immediately after acute coronary occlusion. I doubt the necessary role of pericardial effusion in the production of cardiac enlargement. I have performed pericardicentesis as many as three times on a patient with a large cardiac silhouette associated with benign pericarditis without obtaining significant amounts of pericardial fluid, and I have observed remarkable regression in the size of the hearts of these patients in periods as short as five days without pericardicentesis. Some pericardial effusion is common, but the amount of fluid obtained by Dr. Porter is not impressive in explaining the degree of enlargement of the heart observed. I believe that cardiac dilatation is a considerable factor in the production of enlarged cardiac silhouette, although in some cases large amounts of effused material in the pericardium may explain the enlargement.

DR. LEROY H. BRIGGS, San Francisco: In the differentiation between acute pericarditis and coronary occlusion, an accurate history of the time relationship between the various episodes is all-important. In teaching, we do not emphasize sufficiently that in coronary thrombosis the pain is due to anoxemia of the heart muscle while the friction rub, the fever and the blood changes are due to protein absorption from the infarcted muscle and must perforce come later. On the other hand, in pericarditis the friction rub, the pain and the fever are all due to the infection and occur simultaneously. If the patient has been observed from the start this is of greater significance than the minor electrocardiographic changes which occasionally are misinterpreted. As Dr. Barnes pointed out in his excellent review of the subject in 1942, this differentiation is most important because pericarditis has little effect on the cardiac function of the future, whereas a myocardial infarct does.

Emergency Cases.—When a physician is called in an emergency because the personal or family physician is not at hand, he should provide only for the patient's immediate need and should withdraw from the case on the arrival of the personal or family physician. However, he should first report to the personal or family physician the condition found and the treatment administered.

From the PRINCIPLES OF MEDICAL ETHICS of the American Medical Association.

Clinical Notes, Suggestions and New Instruments

PULMONARY CAVITATION DUE TO POLYARTERITIS

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and
SIEGBERT BORNSTEIN, M.D.
Oteen, N. C.

Polyarteritis as a disease entity was first described by Kussmaul and Maier in 1866 under the name of periarteritis nodosa.[1] Until 1937 about 20 cases had been diagnosed clinically.[2] Since 1937 the number of cases recognized during life has increased greatly due to increased awareness of and interest in the disease. It is difficult to state whether or not there has been an actual increase in the incidence of the disease. Since cases are being attributed to sensitization to a variety of therapeutic agents, such as sulfonamide drugs, heavy metals, iodides and phenylhydantoin sodium, the growing number and increased use of these agents may be responsible in part for any greater incidence. Periarteritis nodosa has also been attributed to sensitization by plant poisons.[3] Conceivably, any substance known to produce allergic manifestations is a potential etiologic factor. When one takes into consideration the millions of persons who have some form of allergy, the incidence of generalized arteritis is, fortunately, rare.

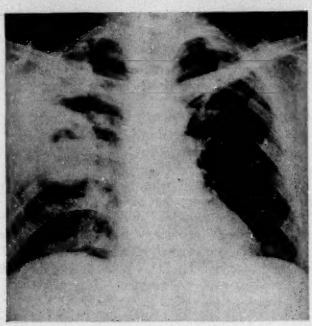

Fig. 1.—Roentgenogram of chest, Dec. 23, 1948, showing a large density in the right midlung with an irregular excavation and an upper lobe thick-walled, round cavity; there is a solid left apical density.

This report describes a case of polyarteritis with roentgenographic evidence of multiple pulmonary cavitation. A review of the literature until July 1949 reveals the report of only 1 case of periarteritis nodosa with pulmonary cavitation found at autopsy, although roentgenograms of the chest had failed to reveal cavitation.[4] A diagnosis of polyarteritis was not made during the life of our patient, but the diagnosis was made by one of us (B. P. S.) when the case was presented at a clinical-pathological conference on the basis of the clinical course and laboratory observations.

REPORT OF CASE

History.—B. S. B., a white man aged 39, a textile worker, was well until March 1948, when he had diffuse joint pains involving the shoulders, wrists, fingers, knees and ankles. In November he began to tire easily. About December 15 he had chilly sensations and a dry cough; he became weaker and dyspneic. A roentgenogram on December 18 showed pulmonary infiltrations.

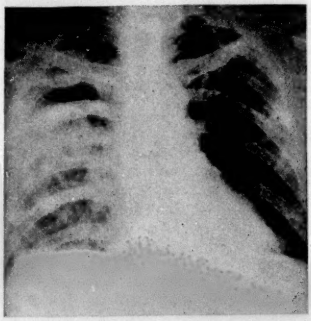

Fig. 2.—Roentgenogram of chest, March 14, 1949, showing pronounced increase in size of the right upper lobe cavity and excavation of the left apical density with new infiltrative lesions in both upper lobes. At the same time the large right midlung cavity has regressed.

He was admitted to Oteen Veterans Administration Hospital Dec. 22, 1948, complaining of weakness, shortness of breath, weight loss and severe cough productive of thick yellow sputum.

Physical Examination.—The patient was a well nourished man 70 inches (178 cm.) tall, weighing 200 pounds (90.7 Kg.), with clear skin and no lymphadenopathy. There were six carious teeth and moderate pyorrhea. The heart was normal, the pulse rate 88 and the blood pressure 114 systolic and 82 diastolic. There was increased tactile fremitus with bronchial breathing over the upper third of the right lung. The left lung was clear. The abdomen, genitalia and extremities were normal. Temperature ranged from 99 to 100.6 F.

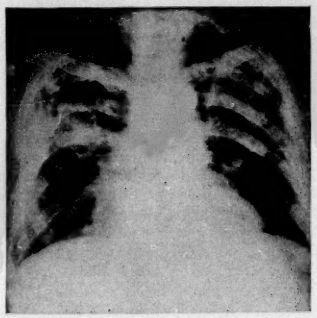

Fig. 3.—Roentgenogram of chest, April 19, 1949, showing extensive new bilateral infiltrative densities. Right lung cavities have increased in size and number.

Laboratory Data.—On admission examination of the blood showed 4,200,000 red blood cells, 79 per cent hemoglobin, and 10,000 white blood cells, with 79 per cent polymorphonuclear cells (70 per cent segmented forms and 9 per cent stab forms), 17 per cent lymphocytes, 1 per cent monocytes, and 3 per cent eosinophils. The sedimentation rate was 23 mm. (Wintrobe) corrected. The urine was normal. Reaction of the blood to

From the Tuberculosis and Laboratory Services, Veterans Administration Hospital.

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1. Kussmaul, A., and Maier, R.: Ueber eine bisher nicht beschriebene eigenthümliche Arterierkrankung (Periarteritis nodosa), die mit Morbus Brightii und rapid fortschreitender allgemeiner Muskellähmung einhergeht, Deutsches Arch. f. klin. Med. **1**: 484-518 (Feb. 1) 1866.
2. Sandler, B. P.: Periarteritis Nodosa: Report of a Case Diagnosed Clinically and Confirmed by Autopsy, Am. J. M. Sc. **195**: 651 (May) 1938.
3. Rytand, D. A.; Burnham, D. K., and Cox, A. J.: Periarteritis Nodosa Following Dermatitis of Poison Oak and of Primrose, Stanford M. Bull. **6**: 319 (May) 1948.
4. Sweeney, A. R., and Gabbenstose, A. H.: Pulmonary Lesions of Periarteritis Nodosa, Proc. Staff Meet., Mayo Clin. **24**: 35 (Jan. 19) 1949.

the Kahn test was negative. Sputum smears and cultures and gastric material were negative for acid-fast bacilli. Fungi, amebas or scolices of Echinococcus were never demonstrated in the sputum and bronchial washings. The tuberculin test was positive to 0.005 mg. of purified protein derivative. Skin tests were negative to blastomycin, histoplasmin and coccidioidin. Serologic tests were negative for amebiasis and Echinococcus disease.

Roentgenogram of the chest (fig. 1) on Dec. 23, 1948 showed an 8 cm. multilocular cavity in the right lung, a 3 cm. cavity in the right apex and a 2 cm. nodule in the left apex. Bronchoscopy revealed slight edema of the spur of the right upper lobe orifice.

Clinical Course.—On Jan. 10, 1949 the patient passed bloody urine. Urinalysis revealed albumin, casts, red blood cells and white blood cells. All subsequent urine studies until death revealed similar abnormalities. Hematuria did not recur. Cystoscopy on January 18 revealed areas of hemorrhagic cystitis. Retrograde pyelograms showed blurring of the left lower calyx. Urine cultures showed Escherichia coli; he received sulfadiazine and streptomycin, with sterilization of the urine. On January 20 he had sudden right testicular pain. On January 24 he had low back pain, nausea and abdominal discomfort. On February 11 his blood pressure was 150 systolic and 86 diastolic. On February 20 he had left testicular pain and a few days later bilateral testicular pain. He also had pains in both legs which increased in severity.

At a diagnostic pneumonotomy on March 17 the large cavity on the right was entered. Pus was not found. The walls of the cavity were necrotic, and sections showed infarction-type necrosis with adjoining areas of fibrous thickening and lymphocytic infiltration of alveolar walls. All bacteriologic studies were negative. A roentgenogram (fig. 2) on March 14 revealed a decrease in size of the cavity on the right with clearing around the cavity. A new density appeared behind the right first rib.

On April 2 the patient had abdominal cramps and diarrhea. On April 11 the red blood cell count was 3,600,000, the hemoglobin 70 per cent. He was given 500 cc. of whole blood. A sternal biopsy on April 15 revealed pronounced eosinophilia of the marrow. On April 23 there appeared on both his legs petechiae, which enlarged, became umbilicated and finally pustular. The legs became moderately edematous. Roentgenograms between April 11 and 19 showed increased consolidation in the left lung and progressive cavitation in the right apex (fig. 3). The patient became more dyspneic. On April 30 he had hemoptysis (500 cc.). The blood urea nitrogen level was 163 mg. per hundred cubic centimeters a few hours before his death on May 3, 1949.

Comment.—A man aged 39 was hospitalized because of signs and symptoms of pulmonary disease. He ran a subacute, febrile, downward course with increasing secondary anemia, anorexia, weight loss and weakness. Roentgenograms of the chest showed multiple cavities and nodular densities with subsequent regression in some areas coincident with progression in others. His course was characterized by widespread bizarre symptomatology indicative of disease of several organ systems. He failed to respond to various drugs, transfusions and supportive measures, and he died after five and one-half months of hospitalization. During this time he had signs and symptoms of pulmonary disease, nephritis, hypertension, hemorrhagic cystitis, gastrointestinal disease and pain in the testicles, joints and muscles of the legs. Terminally he had skin lesions, became more dyspneic and weak, had a massive hemoptysis and showed evidence of severe renal impairment.

Observations.—Gross: Numerous dry flat scabs covered the skin of the ankles and the lower half of the legs. Three hundred cubic centimeters of light clear yellow fluid were present in the abdominal cavity. The right pleural cavity was almost obliterated by firm adhesions. Soft adhesions connected the apex of the left lung to the parietal pleura, and 100 cc. of greenish turbid flaky fluid were in the left pleural cavity. The pericardial sac was large. It contained 120 cc. of turbid yellow fluid. The inner surface of the pericardium and the epicardium was covered with finely granular and flaky yellow-gray material. The heart weighed 515 Gm. The wall of the left ventricle was thickened to 18 mm. In the anterior leaflet of the mitral valve there was a bright red effusion, 6 by 4 mm. After the adhesions around the thoracotomy were severed by dull force, a round sharp-edged 3 cm. opening in the surface of the right lung was created. Through it the wall of a round cavity could be seen. This wall was soft, granular and grayish. Posterior to this cavity and of approximately the same size was a circumscribed firm consolidation. Below and above were round, fairly hard nodes 3 and 6 mm. in diameter. A third mass, nearly 4 cm. in diameter, was located in the apex of the lower lobe. The pleura of the left lung, except for adhesions corresponding to consolidated areas, was smooth. The lung was soft except for two consolidated areas, one in the apex, the other laterally below, of about the same size and consistency as those described in the other lung. In the apical portion was a central colliquation, 3 mm. in diameter, containing thin yellow fluid. Hilar lymph nodes on both sides were up to 2 cm. long, dark gray and soft (fig. 4). The liver weighed 2,650 Gm., was firm and yellowish brown. The spleen weighed 410 Gm. The capsule was covered with fibrous tags. It was firm in consistency. The follicles were small and appeared to be irregularly distributed. The mucosa of the renal pelves was granular. The uppermost calyx on the right was 1 cm. wide, and a blood clot was adherent to the mucosa. Small areas of hemorrhage were seen in the upper pole of the right testis.

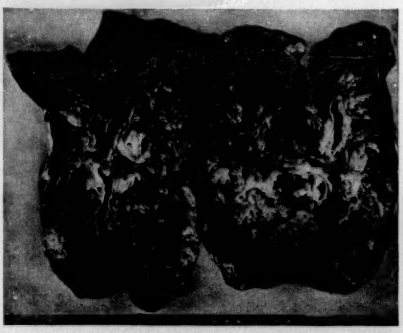

Fig. 4.—Gross appearance of lungs after fixation in solution of formaldehyde.

In the intestines (fig. 5) the mesenteric arteries were not remarkable. In the ileum were hemorrhagic areas 5 mm. in diameter, and in the terminal portion were several superficial longitudinal ulcerations, the largest measuring 4 by 1½ cm. The ascending colon was purple-black, with total destruction of its mucosa for a distance of 12 cm. In the upper portion of the ascending colon ulcerations averaging 8 mm. in diameter penetrated to the serosal layer, where the surface was injected.

Microscopic: In places the denuded epicardial surface was covered with thick masses of fibrin and nuclear debris. In the sub-epicardium were collections of lymphocytes and granulocytes, many of the latter being eosinophilic. The heart muscle showed a few granulocytes in the interstitium. At the edge of the lungs there was a necrotic area, and in it were blood vessels filled with fibrin clots. Their walls were widely necrotic and contained fibrinoid material mixed with nuclear debris and some preserved granulocytes. A larger branching vessel at the periphery of the necrotic area contained granulocytic accumulations in the wall, and the lumen was filled with vascular fibrous tissue containing granulocytes, some of which were eosinophilic. A narrow zone of moderately vascular loose fibrous tissue with scattered lymphocytes and granulocytes surrounded the necrotic area. Adjoining lung tissue showed alveolar septums broadened by hyperemia and fibrosis and irregular areas of lymphocytic accumulation and small abscesses. In the hilar lymph nodes were small areas of necrosis with granulocytic invasion. The liver showed central congestion and mod-

erate granulocytic infiltration of periportal spaces. In the spleen some follicles were preserved. The pulp was hyperemic. Most of the malpighian arteries consisted of a central blood or fibrin

Fig. 5.—Intestinal ulcers, fresh specimen.

Fig. 6.—Enlarged photomicrograph, × 117; edge of necrosis in lung showing destruction and inflammatory exudate in walls of blood vessels.

clot surrounded by fibrinoid material and a broad ring of granulocytes, many of which were eosinophilic. In the kidneys many glomeruli showed various degrees of fibrosis. In some, fibrinoid material replaced part or all of the loops. Some glomeruli were surrounded by an infiltration of lymphocytes and granulocytes. The convoluted tubules were distended. The cortical interstitium was hyperemic and cellular, containing small hemorrhages. Many tubules were filled with granular eosin-staining material. An arcuate artery showed changes similar to those described in the malpighian arteries in the spleen. In the medulla the interstitium was moderately edematous. The pelvis was hyperemic, the epithelium partly desquamated. Small blood vessels in the peripelvic fat tissue had necrotic walls that were loosely infiltrated with granulocytes and lymphocytes. The epithelium of the bladder was partly desquamated, and fibrin covered the mucosal stroma, which was severely edematous and hyperemic. It contained groups of eosinophils, plasma cells and lymphocytes. The pancreas showed a small artery, the wall of which was almost completely destroyed by a purulent exudate. In the capsule of the thyroid gland was a small artery nearly replaced by fibrinoid material and nuclear debris. Similar blood vessels were seen at the edge of an ulcer in the colon and in the submucosa of the ileum. Cutaneous blood vessels showed various degrees of the changes previously described.

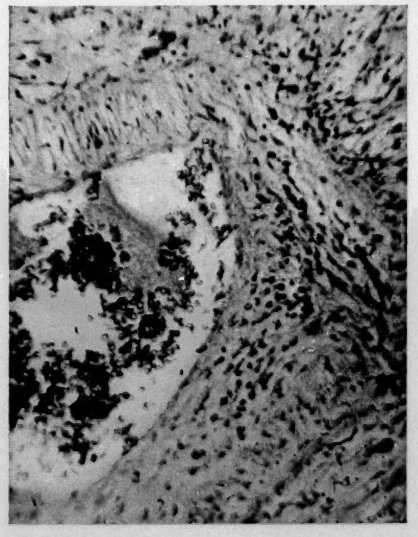

Fig. 7.—Enlarged photomicrograph, × 195, of pulmonary artery, showing early segmental involvement of muscle coat.

Diagnosis: Periarteritis nodosa caused large cavitating necrosies in the lungs; it was complicated with terminal septicemic necrotizing arteritis and with ulcers of the skin, ileum and colon; the septicemia also involved spleen, kidneys, renal pelves, pancreas and thyroid; serofibrinous pericarditis and pleuritis were present on the left; there were hemorrhages in the endocardium, testis and bladder, also hypertrophy of the heart and ascites.

COMMENT

Periarteritis nodosa has involved the lungs in about 27 per cent of the cases reported.[5] The pulmonary manifestations are varied clinically, roentgenologically and pathologically, since they depend on whether or not the lesions are acute or chronic, gross or microscopic, isolated or confluent. Isolated microscopic lesions may not give rise to cough and sputum and may not produce

5. Harris, A. W.; Lynch, G. W., and O'Hare, J. P.: Periarteritis Nodosa, Arch. Int. Med. **63**: 1163 (June) 1939. Spiegel, R.: Clinical Aspect of Periarteritis Nodosa, ibid. **58**: 993 (Dec.) 1936. Sweeney and Gabbenstose.[4]

opacities on the roentgenogram. Such lesions may heal without detection. Involvement of somewhat larger arteries may produce cough and opacities on the roentgenogram. These opacities appear as nodules and, if bilateral and diffuse, may lead to a diagnosis of miliary tuberculosis. If the lesions coalesce at the base or hilar regions, irregular shadows appear that resemble those seen in bronchopneumonia. Extension of lesions to the pleura may cause pain. Involvement of submucosal vessels in the trachea and bronchi may cause ulceration with cough and bloody sputum. Localized weakening of an arterial wall may lead to rupture and hemoptysis. Involvement of still larger arteries may lead to extensive infarction with necrosis and excavation.

The diagnosis of polyarteritis from a single roentgenogram of the chest is virtually impossible. Serial roentgenograms may suggest the diagnosis if one sees regression of earlier lesions, progression in others, with or without the appearance of fresh lesions. This continuous change in the roentgenographic picture becomes understandable when one considers that some lesions will heal, contract and regress, that other lesions will progress and that new lesions will make their appearance. The appearance on the film of a wedge-shaped opacity, suggesting an infarct, should make one think of polyarteritis in an obscure case presenting clinical and laboratory observations compatible with the disease. Certainly an obscure pulmonary case with chronic febrile course and with evidence of widespread systemic disease such as allergic phenomena, skin lesions, cardiac symptoms, peripheral neuritis, central nervous system disease, nephritis, muscle and joint pains or eosinophilia of the blood or marrow, should suggest the diagnosis. Any combination of organ involvement is possible; hence, the clinical picture may be exceedingly bizarre.

SUMMARY

Pulmonary cavitation resulted from extensive infarction due to polyarteritis. A review of the literature reveals no case of this disease with roentgenographic evidence of pulmonary cavitation. No doubt such cases have been missed in the past. It is imperative to consider the diagnosis of polyarteritis in cases of pulmonary cavitation of obscure origin.

EXTERNAL RUPTURE OF THE HEART CAUSING A SYSTOLIC MURMUR AND THRILL

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and
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Rupture of the heart was first described by Harvey in 1647.[1] Of all the deaths attributed to myocardial infarction 8 to 12 per cent [2] are said to be due to rupture of the myocardium. This complication usually occurs between the second and twelfth day and seldom occurs during the first twenty-four hours.[2b] The average age of death in a series of 10 cases reported by Friedman and White [2a] was 65.7 years of age. Rupture of the heart is about four times as frequent in the presence of hypertension as in the presence of normal blood pressure.[3] The value of bed rest in preventing myocardial rupture during infarction is emphasized by the study of White and Jetter [4] in mental patients. Seventy-three per cent of the deaths due to infarction were caused by rupture, and in the majority an antemortem diagnosis was not made.

From the Department of Cardiology, Emory University School of Medicine.

1. Harvey, W.: Exercitatio Anatomica de Motu Cordis et Sanguinis in Animalibus, cited by Morgagni, J. B.: The Seats and Causes of Diseases Investigated by Anatomy, translated by Benjamin Alexander, London, A. Millar & T. Cadell, 1769, Letter 27.

2. (*a*) Friedman, S., and White, P. D.: Rupture of the Heart in Myocardial Infarction: Experience in a Large General Hospital, Ann. Int. Med. **21:** 778, 1944. (*b*) Mallory, G. K.; White, P. D., and Salcedo-Salgar, J.: The Speed of Healing of Myocardial Infarction: A Study of the Pathological Anatomy in 72 Cases, Am. Heart J. **18:** 647, 1939.

3. Edmonson, H. A., and Hoxie, H. J.: Hypertension and Cardiac Rupture: Clinical and Pathological Study of 72 Cases in 13 of Which Rupture of the Interventricular Septum Occurred, Am. Heart J. **24:** 719, 1942.

4. Jetter, W. W., and White, P. D.: Rupture of the Heart in Mental Institutions, Ann. Int. Med. **21:** 783, 1944.

The appearance of a murmur and thrill during the course of acute myocardial infarction is a grave prognostic sign. Rupture of the interventricular septum following infarction is a well recognized clinical syndrome, and there are increasing reports of the diagnosis being made ante mortem.[5] Septal rupture is characterized by the sudden appearance of a harsh systolic murmur and thrill just to the left of the sternum in the fourth and fifth intercostal space. Rupture is generally accompanied with shock which may persist for days or weeks. With prolonged survival, decided right heart failure may occur with eventual death due to congestive heart failure.[6] Rupture of a papillary muscle is usually secondary to myocardial infarction.[7] It is charactetrized by the sudden onset of a systolic murmur and thrill in the region of the apex. The murmur is more musical than that of septal rupture, and there may be a diastolic component. Rupture of a papillary muscle is usually accompanied with pulmonary edema.[8]

There are other causes of sudden appearance of murmurs and thrills which are not related to myocardial infarction. Rupture of the chordae tendinae is usually associated with previous rheumatic infection, frequently with secondary calcification of the chordae tendinae.[9] The murmur is harsh and systolic in time and most intense in the region of the apex. Rupture of an aortic sinus of Valsalva [10] into the pulmonary artery, auricle or ventricle may produce a sudden murmur of a machinery type, which is loudest at the base of the heart. It is often accompanied with chest pain and collapse. Retroversion of an aortic valve is associated with an intense systolic and diastolic murmur and thrill at the base of the heart.[11] The murmur has been described as sounding like a "cooing dove," the "twang of a jew's-harp," a "humming top" or a "cuckoo clock." Retroversion is more often associated with syphilitic aortic insufficiency but infrequently occurs with rheumatic insufficiency. The following case demonstrates another cause of the sudden appearance of a harsh systolic murmur and thrill over the precordium; as far as we know, this is the only case reported in which external rupture of the heart caused these observations.

REPORT OF CASE

Mrs. E. B., aged 69, was admitted to the hospital on July 14, 1949, complaining of severe chest pain. About fifteen minutes before her admission to the hospital she had severe, crushing substernal pain which radiated to the shoulders and back. There was severe sweating with faintness and extreme weakness, so that she was forced to sit. She had had hypertension for a number of years, and for two to three years prior to admission she had experienced mild retrosternal discomfort on exertion. She had never taken glyceryl trinitrate; there was no history of paroxysmal nocturnal dyspnea, shortness of breath or edema.

Physical examination revealed an acutely ill woman who was mildly cyanotic. She was sweating profusely, and the skin was cold and clammy. The temperature was 98.6 F., the pulse rate was 80 with a regular rhythm; the respiratory rate was 20 per minute; the blood pressure was 160 systolic and 100 diastolic in both arms. The heart was slightly enlarged

5. Sager, R. V.: Coronary Thrombosis: Perforation of Interventricular Septum, Arch. Int. Med. **53:** 140 (Jan.) 1934. Weber, M. L.: Perforation of the Interventricular Septum Following Infarction: Intravitam Diagnosis; Report of Case and Survey of the Literature, Ann. Int. Med. **19:** 973, 1943. Diaz-Rivera, R. S., and Miller, A. J.: Rupture of the Heart Following Acute Myocardial Infarction, Am. Heart J. **35:** 126, 1948.

6. Moolten, S. E.: Prolonged Survival After Perforation of the Infarcted Interventricular Septum in Coronary Arterial Disease, Arch. Int. Med. **69:** 108 (Jan.) 1942. Wood, F. C., and Miller, M.: Five Year Survival After Perforation of Interventricular Septum Caused by Coronary Occlusion: Histological Study of Kidneys After 35 Injections of Mercurial Diuretics, Am. Heart J. **24:** 807, 1942.

7. Lipscomb, H. R.: Rupture of a Papillary Muscle in the Heart, M. Bull. Vet. Admin. **15:** 73, 1938.

8. Stevenson, R. S., and Turner, W. J.: Rupture of a Papillary Muscle in the Heart as a Cause of Sudden Death, Bull. Johns Hopkins Hosp. **57:** 235, 1935.

9. Bailey, O. T., and Hickam, J. B.: Rupture of Mitral Chordae Tendinae: Clinical and Pathological Observations on 7 Cases in Which There Was No Bacterial Endocarditis, Am. Heart J. **28:** 578, 1944.

10. Hermann, G. R., and Schofield, M. D.: The Syndrome of Rupture of Aortic Root or Sinus of Valsalva into Right Atrium, Am. Heart J. **34:** 87, 1947.

11. Bellet, S.; Gouley, M. D.; Nichols, C. F., and McMillan, T. M.: Loud, Musical, Diastolic Murmurs of Aortic Insufficiency: Clinical and Pathological Observations upon Their Cause and the Mechanism of Their Production, Am. Heart J. **18:** 483, 1938.

to the left. The heart sounds were of poor quality, but there were no murmurs and no pericardial friction rub. The lungs were clear to auscultation. The liver and spleen were not felt. The arterial pulsations in the lower extremities were normal, and there was no edema. The reflexes were normal.

Oxygen was administered to the patient by nasal catheter. She was given morphine sulfate, 10 mg. subcutaneously and 10 mg. intravenously, with good relief from her pain. Dicumarol,* 300 mg., was given, and because of the appearance of premature beats quinidine sulfate, 200 mg. every four hours, was administered. The hemoglobin level was 13.4 Gm. per hundred cubic centimeters of blood. The leukocyte count was 11,950 with a normal differential. The sedimentation rate was 17 mm. in one hour by the Westergren method. The prothrombin concentration was normal. The electrocardiogram (fig. 1) showed early changes of an acute anterior myocardial infarct.

Three hours after admission of the patient it was noted that her blood pressure had dropped to 90 systolic and 60 diastolic. Examination at this time revealed an intense, harsh systolic murmur with a purring systolic thrill over the lower part of the sternum and to the left of the sternum in the fourth and fifth intercostal spaces. A clinical diagnosis of rupture of the interventricular septum was made at this time. She remained in shock with distended neck veins. There was no paradoxic blood pressure. A diastolic murmur could not be heard. The lung fields remained clear. She died suddenly about four and one-half hours after admission, or about two and one-half hours after signs of rupture of the heart were detected. At

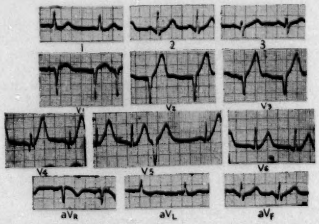

Fig. 1.—Electrocardiogram showing early changes of an acute anterior myocardial infarct. Note absence of expected increase in height of R in leads V_2 and V_3, elevation of the S-T segment in leads V_2 and V_3 with tall T waves in leads V_2, V_3 and V_4 and significant Q wave in lead V_4.

autopsy there was pericardial tamponade with 250 cc. of liquid blood and blood clots in the pericardium. The heart weighed 260 Gm. There was an area of purplish discoloration measuring 3 by 5 cm. in the region of the apex of the left ventricle, 1.0 cm. lateral to the anterior descending branch of the left coronary artery (fig. 2). Just lateral to the septum there was a ragged longitudinal tear 1.2 cm. in length extending through all coats of the heart wall. In this area there was hemorrhage and necrosis; the wall was thin and friable, measuring 0.8 cm. in thickness. The interventricular septum was not involved and was intact throughout. At a distance of 8 cm. from the origin of the left coronary artery there was a circular, raised, roughened yellowish plaque which nearly completely obstructed the lumen. The remainder of the coronary arteries contained numerous small atheromatous plaques. Microscopic examination revealed pronounced necrosis of the muscle with infiltration of polymorphonuclear cells and hemorrhage in the tissue (fig. 3). Hemorrhage into the pericardium could be seen. There was beginning thrombosis of the endocardium at the site of the infarction. The age of the infarct histologically seemed considerably older than six hours and appeared to be at least twenty-four hours old.[2b] In addition to the conditions observed in the heart, there was pulmonary congestion.

COMMENT

The case reported herein was diagnosed ante mortem as rupture of the interventricular septum complicating an anteroseptal myocardial infarction. It presents several interesting features. If the infarct were only four hours old when the rupture occurred, softening must have taken place extremely rapidly. If the infarct was at least twenty-four hours old, as the report of the pathologist indicated, the normal physical activity of the patient in combination with hypertension prior

Fig. 2.—Note the discolored area due to infarction with the longitudinal tear in the center of the heart.

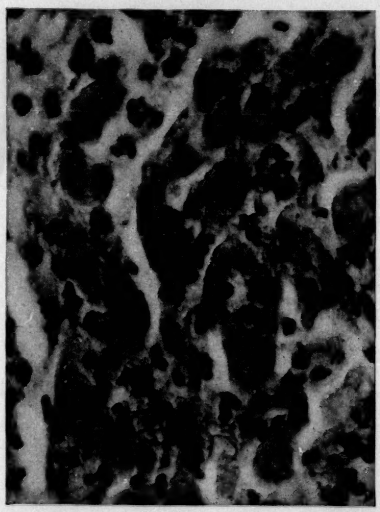

Fig. 3.—Note the muscle necrosis and pronounced infiltration of polymorphonuclear leukocytes.

to the onset of symptoms may have contributed to the rupture. It is recognized that painless myocardial infarction occurs in approximately 10 per cent of cases, and the episode which resulted in hospitalization may have represented an extension of a previous infarct.

The onset of a loud, harsh systolic murmur and thrill in the fourth and fifth left intercostal spaces adjacent to the sternum during the course of acute infarction compels a diagnosis of a ruptured interventricular septum. Painstaking examination did not reveal a septal defect post mortem. When external rupture of the heart occurs, death is usually immediate as the result of tamponade. In the case reported, death did not occur for two and one-half hours. The persistence of a murmur and thrill in such circumstances is difficult to explain. A possible explanation is that the defect in the external wall was quite small during systole when the ventricle was contracted and a jet of blood was expelled under high pressure. In diastole, with the relaxed ventricle, the defect may have been larger and some of the blood in the pericardium under pressure may have reentered the ventricle.

It is of interest that no diastolic murmur was heard, suggesting that there was insufficient turbulence to produce such a sound.

SUMMARY

Rupture through the external surface of the ventricle secondary to myocardial infarction may produce a loud systolic murmur and thrill simulating that of rupture of the interventricular septum. A case demonstrating the features of this condition is reported.

ECZEMA VACCINATUM SUCCESSFULLY TREATED WITH CHLORAMPHENICOL (CHLOROMYCETIN®)

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San Francisco

Perry and Martineau [1] reported recently on a boy 2 years of age with atopic eczema who after close association with a freshly vaccinated playmate displayed generalized eczema vaccinatum. The child was severely ill with a temperature of 104.8 F. and a white blood cell count of 34,000. Administration of aureomycin by mouth was followed by immediate regression and desiccation of the skin lesions and rapid improvement of the general condition. In their introductory remarks Perry and Martineau mentioned that the mortality of eczema vaccinatum according to McKhann and Ross [2] is 33 per cent and that most of the deaths are caused by general sepsis or encephalitis. The following observation seems worth reporting, since it concerns eczema vaccinatum observed in an adult woman with generalized neurodermatitis, treated successfully with chloramphenicol (chloromycetin®).

REPORT OF CASE

E. deL., a white woman aged 23, had generalized neurodermatitis at the age of 19 years, shortly after the birth of her first child. She had been treated at the skin clinic of the San Francisco Polyclinic since the middle of 1948, and in April 1949 the skin of her neck, flexor surfaces of extremities and especially both cubital and popliteal fossae were reddened, infiltrated and in places lichenified. Peroral administration of antihistaminic drugs made her feel relatively comfortable.

On May 12, 1949 she reported to the clinic again because of a generalized vesicopustular eruption accompanied with high fever. She gave a history of having noticed a blister on the second finger of her left hand one week previously. Within several days numerous blisters had developed on her extremities, especially on the flexor surfaces of her arms, and finally also on her face.

The flexor surfaces of her arms were covered with hundreds of vesicles with central umbilication (see the accompanying illustration) ranging in size from a pin point to a pea, some surrounded by an inflammatory zone. The left arm was more severely affected than the right, and both showed massive swelling. The axillary lymph nodes were swollen and painful. The patient, who complained of nausea and weakness, was in poor general health. Her temperature was 104.2 F. and her white blood cell count 18,700. On questioning she remembered that her child 1 year of age had been vaccinated three weeks previously and the usual pustular reaction had developed. She had changed the dressing on the baby's arm only once, two weeks before she was seen. The first lesion had appeared one week after this exposure. The patient herself had never been vaccinated against smallpox. A clinical diagnosis of eczema vaccinatum was made. A positive Paul's test confirmed the clinical diagnosis. The patient was put to bed immediately and chloramphenicol therapy was started. She was given 500 mg. of the drug six times daily on the first day and 250 mg. four times daily for the next three days.

The response was dramatic. Within twenty-four hours her temperature dropped and her general condition improved decidedly. The temperature was normal within forty-eight hours. The lesions began to dry up and were beginning to

Vesicles with central umbilication on flexor surface of arm.

subside after forty-eight hours. On March 19, one week after she had first been seen, she was ambulatory and the acute inflammatory signs of her skin manifestations had disappeared. Except for many typical vaccinia scars there are no residues.

COMMENT

The prompt improvement immediately following chloramphenicol therapy parallels that obtained by Perry and Martineau with aureomycin. According to a communication from the Medical Department of Parke Davis & Company, chloramphenicol is ineffective in smallpox and vaccinia in vitro and vivo. It seems possible that in the case of Perry and Martineau, as well as in my case, the rapid improvement may be due to the effect of antibiotic drugs on secondary invaders.

There is no doubt in my mind that the antibiotics used were responsible for the rapid improvement in both cases. As eczema vaccinatum especially in previously unvaccinated persons with generalized dermatitis is a serious complication of vaccinations and has a high mortality rate, the use of chloramphenical (chloromycetin®) or aureomycin as soon as the diagnosis is established seems definitely indicated.

Chloramphenicol may be the drug of choice because it is better tolerated than aureomycin, which has been found to cause gastric symptoms and occasionally also anal pruritus or perianal dermatitis.

490 Post Street (2).

1. Perry, F. G., and Martineau, P. C.: Eczema Vaccinatum: Rapid Recovery Following Treatment with Aureomycin, J. A. M. A. **141**: 657, 1949.
2. McKhann, C. F., and Ross, R. A.: Generalized Vaccinia and Eczema Vaccinatum, M. Clin. North America **22**: 785, 1938.

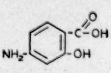
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., *Secretary.*

p-AMINOSALICYLIC ACID.—$C_7H_7NO_3$.—M.W. 153.13.—The structural formula for *p*-aminosalicylic acid may be represented as follows:



Actions and Uses.—*p*-Aminosalicylic acid has in vitro and in vivo action against the tubercle bacillus, although it is less potent than the streptomycins. It is used principally as a supplement to these antibiotics, not only because it may produce some addition of effects, but also because the combination may postpone the development of bacterial resistance. *p*-Aminosalicylic acid may be indicated alone in tuberculous infections in which the bacilli have become resistant to streptomycin and dihydrostreptomycin or where, for any reason, these antibiotics may be contraindicated. Resistance to *p*-aminosalicylic acid usually develops slowly. *p*-Aminosalicylic acid alone may be indicated, also, in infections which are deeply intrenched, especially when surgery is anticipated later and it is desirable to reserve the streptomycin drugs for that time.

The drug is well absorbed from the alimentary tract, producing blood levels which are usually maintained for four hours. Excretion in the urine is rapid and nearly complete. Epigastric discomfort, anorexia, nausea and vomiting are frequently troublesome toxic manifestations. Occasionally soft stools or, less frequently, diarrhea occurs. In other respects the drug has only rarely been harmful to humans. However, dermatoses and drug fever have been reported. Small initial doses; smaller, more frequent subsequent doses; simultaneous administration of 5 to 10 cc. of Aluminum Hydroxide Gel-U.S.P., and the routine administration with meals may limit the gastrointestinal disturbances.

Dosage.—*p*-Aminosalicylic acid may be given in the form of tablets or capsules, coated granules, or in solution. The recommended daily dose is 12 (8 to 16) Gm., given orally in four or more doses.

Tests and Standards.—

Physical Properties: *p*-Aminosalicylic acid is a white or nearly white, bulky powder which is odorless or has a slight acetous odor. It melts with decomposition between 135 and 140 C. At 25 C., 0.2 Gm. will dissolve in 100 ml. of water and 4.75 Gm. in 100 ml. of alcohol. 1 Gm. dissolves in 10 ml. of 10 per cent sodium bicarbonate to give a clear solution with no more than a faint yellow color. A saturated aqueous solution has a *p*H between 3.2 and 3.7.

Identity Tests: Place about 0.2 Gm. of *p*-aminosalicylic acid in a small test tube and heat it in an oil bath at about 145 C. (*Caution:* Prevent excessive foaming caused by too rapid decarboxylation.) After the evolution of gas has ceased, recrystallize the product from toluene by adding several drops of alcohol to a suspension of the product in hot toluene. On cooling, white to nearly white crystals of *m*-aminophenol are obtained which, after drying, melt at about 122 C.

Transfer about 0.5 Gm. of *p*-aminosalicylic acid to a flask and add 5 ml. of acetic anhydride. Heat the flask on a steam bath for 0.5 hour and then pour the solution over a small amount of crushed ice. After the ice has melted and the product solidified, filter the mixture and recrystallize the solid by suspending it in benzene and adding just enough alcohol to the hot suspension to complete solution. Cool, and filter to remove the white crystalline diacetyl derivative which, on drying, melts at about 191 C.

A 0.0005 per cent solution of *p*-aminosalicylic acid, prepared as directed in the assay, exhibits ultraviolet absorption maxima at approximately 2650 A, E (1% 1 cm.) about 856, and 2990 A, with minima at 2440 and 2850 A. The ratio of the optical densities at 2650 and 2990 A is between 1.50 and 1.56.

Purity Tests: Dissolve the residue from the ignition of *p*-aminosalicylic acid, as described later, in 20 ml. of hot water, add 2 ml. of diluted acetic acid and make up to a total volume of 25 ml. Add 10 ml. of hydrogen sulfide T.S.: the heavy metals limit (*U. S. P. XIV*, page 717) is 30 ppm.

Dry about 2 Gm. of *p*-aminosalicylic acid, accurately weighed, in a vacuum for 5 hours over phosphorus pentoxide: the loss in weight is not more than 0.5 per cent.

Char about 1 Gm. of *p*-aminosalicylic acid, accurately weighed, over a low flame. Cool the charred mass, then add 1 ml. of sulfuric acid and continue ignition until no carbon remains: the amount of residue present is not more than 0.5 per cent.

Assay: (*p*-Aminosalicylic Acid) Transfer 30 mg. of *p*-aminosalicylic acid, accurately weighed, to a 1,000 ml. volumetric flask, and add 1 ml. of 1 *N* sodium hydroxide and about 100 ml. of water. Shake the mixture until solution is complete and then dilute to the mark with water. Transfer exactly 10 ml. of the solution to a dry 125 ml. flask and add exactly 50 ml. of phosphate buffer [6.72 Gm. of monobasic potassium phosphate (KH_2PO_4) and 11.92 Gm. of anhydrous dibasic sodium phosphate (Na_2HPO_4) dissolved to make 1,000 ml.]. Determine the optical density of the final solution (0.0005 per cent) at 2650 A with a spectrophotometer. The number of mg. of *p*-aminosalicylic acid present per ml. of solution-optical density at 2650 A ÷ 85.6. The amount of *p*-aminosalicylic acid present is not less than 96 nor more than 102 per cent.

MERCK & CO., INC., RAHWAY, N. J.

Powder Para-Aminosalicylic Acid: 50 and 500 Gm. bottles; 2.5 and 50 Kg. fiber drums (for manufacturing use only).

SODIUM PSYLLIATE.—Sylnasol (SEARLE).—Sodium salt of psyllium oil liquid fatty acids.—Sodium psylliate is a mixture of the sodium salts of the liquid fatty acids prepared by saponification of the vegetable oil of Plantago seed (Plantago ovata-Forskal). Sodium psylliate is made by dissolving the fatty acids in dilute sodium hydroxide and is not isolated from the solution. The psyllium oil liquid fatty acids used in preparing sodium psylliate solution respond to the tests and standards given below.

Actions and Uses.—Sodium psylliate is used in the form of a 5 per cent solution as a sclerosing agent for the obliteration of varicose veins of the lower extremities and of selected internal hemorrhoids which are not prolapsed or thrombosed. It is not recommended for other types of hemorrhoids.

Its sclerosing action is approximately equivalent to that of other fatty acid salts and it is subject to about the same frequency of allergic reaction to repeated use.

Dosage.—A 5 per cent solution of sodium psylliate is injected in amounts dependent upon the size of the varicosity to be obliterated. The dose may vary from a few minims in suitable internal hemorrhoids, to 5 cc. or 6 cc. for large sacculated veins of the lower extremities. The large doses should be given no oftener than twice weekly and single doses in excess of 6 cc. should be avoided. It is advisable to inject a test dose of 0.5 to 1 cc. to detect possible idiosyncrasy before commencing therapy. Treatment should be discontinued when severe reactions occur or are suspected.

Tests and Standards.—

Physical Properties: Psyllium oil liquid fatty acids are a moderately viscous, amber to brown liquid with an oily odor. The specific gravity is between 0.925 and 0.930.

Identity Tests: To 1 drop of psyllium oil liquid fatty acids add 1 ml. of chloroform and 1 drop of sulfuric acid: a red to brown red color develops.

Determine the iodine value of about 0.15 Gm. of psyllium oil liquid fatty acids, accurately weighed, as directed in *U. S. P. XIII*, page 647. The iodine value is not less than 130 nor more than 180.

Determine the acid value of about 1 Gm. of psyllium oil liquid fatty acids, accurately weighed, as directed in *U. S. P. XIII*, page 646. The acid value is not less than 130 nor more than 180.

Dosage Forms of Sodium Psylliate

SOLUTION (5 PER CENT WITH 2 PER CENT BENZYL ALCOHOL).

Physical Properties: Solutions vary in color from light amber to yellow and have a soap-like odor and a slippery feel. They foam readily on shaking. The *p*H is between 8.7 and 9.2.

Assay: Accurately measure 4 ml. of sodium psylliate solution into a clean Leffman-Beam centrifuge tube, add 2.5 ml. of diluted hydrochloric acid, and place the tube in a water bath at 80 to 90 C. for 3 to 5 minutes. Centrifuge for 5 minutes at low to moderate speed and allow to cool to room temperature. Fill the tube with water and centrifuge again for 5 minutes. The value read on the calibrated stem of the centrifuge tube is converted to the percentage of sodium psylliate by means of the following equation:

$$\% \text{ sodium psylliate} = (\text{reading} \times 1.25) - 0.2$$

The factor 0.2 is to compensate for benzyl alcohol in the oil phase. The amount of sodium psylliate found is not less than 90 nor more than 110 per cent of the labeled amount.

G. D. SEARLE & CO., CHICAGO 80

Sclerosing Solution Sylnasol 5% with Benzyl Alcohol 2%: 5 cc. and 60 cc. vials. An aqueous solution containing 50 mg. of sodium psylliate in each cc.

U. S. Patents 2,115,491 and 2,115,492; U. S. Trademark 340,714.

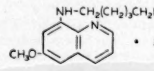
CITRATED NORMAL HUMAN PLASMA (See New and Nonofficial Remedies 1950, page 425).

The following dosage form has been accepted:

SHARP AND DOHME INC., PHILADELPHIA

Lyovac Normal Human Plasma: 50, 250 and 500 cc. bottles of dried plasma, packaged with a double pointed needle and 50, 250 and 500 cc. respectively of 0.1 per cent citric acid solution for restoration.

PENTAQUINE PHOSPHATE–U. S. P.—"Pentaquine Phosphate, dried at 105° for 2 hours, contains not less than 97.5 per cent of $C_{19}H_{32}N_3O.H_3PO_4$". *U. S. P.* The structural formula of pentaquine phosphate may be represented as follows:



For description and standards see the U. S. Pharmacopeia under Pentaquine Phosphate and Pentaquine Phosphate Tablets.

Actions and Uses.—Pentaquine phosphate closely resembles pamaquin naphthoate in its antimalarial action, but is approximately three-fourths as toxic. When used alone, pentaquine phosphate is ineffective as a curative agent for malaria due to Plasmodium vivax. However, used in conjunction with quinine sulfate, it does cure vivax malaria. It is not recommended for use alone in the treatment of any type of malaria.

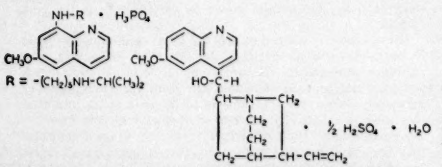
The toxic effects of pentaquine phosphate are similar to those of pamaquin naphthoate but they occur less frequently and are usually less severe. Acute hemolytic anemia has been observed in a few instances, and with maximum doses, anorexia and abdominal discomfort have occurred. In doses approximately four times the maximum therapeutic dose, the syndrome of postural hypotension has been observed.

Dosage.—For adults, 30 mg. daily in divided doses given concurrently with 1 Gm. of quinine sulfate. Treatment should be continued for 14 days. This is the maximum dosage. It is not known whether pentaquine phosphate is safe for children.

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Tablets Pentaquine Phosphate: Each tablet represents 10 mg. of pentaquine base (containing 13.3 mg. of pentaquine phosphate).

PENTAQUINE PHOSPHATE–U.S.P. AND QUININE SULFATE–U.S.P.—$C_{19}H_{32}N_3O.H_3PO_4$ and $C_{20}H_{24}N_2O_2{}^1/_2H_2SO_4H_2O$. M.W. 398.42 and 391.47.—The structural formulas of pentaquine phosphate and quinine sulfate may be represented as follows:



Actions and Uses.—See the monograph for Pentaquine Phosphate.

Dosage.—The dosage should be adjusted to provide not more than 30 mg. pentaquine phosphate daily. The dosage schedule proposed for pentaquine phosphate should be followed.

Tests and Standards.—

The pentaquine phosphate and quinine sulfate used in this mixture meet the requirements of the U. S. Pharmacopeia for these substances.

TABLETS. *Identity Tests:* Remove the colored coating from 5 tablets by carefully washing them with water. Crush and dissolve the tablets in 10 ml. of water and remove the undissolved material by centrifuging. The clear solution responds to the identity tests for Pentaquine Phosphate Tablets in *U. S. P. XIV*, page 436. Dissolve most of the residue remaining in the centrifuge tube by heating it with 50 ml. of water. Filter the hot solution and allow the filtrate to cool slowly. The white crystalline material which separates responds to the identity tests for Quinine Sulfate in *U. S. P. XIV*, page 506.

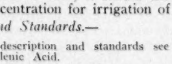
Assay: (Pentaquine Phosphate) Remove the colored coating from 5 tablets by carefully washing them with water. Crush them and quantitatively transfer the powdered material to a 500 ml. volumetric flask. Add about 150 ml. of 0.1 *N* sulfuric acid, shake the flask for 15 minutes, fill to the mark with 0.1 *N* sulfuric acid, mix thoroughly and filter the solution, discarding the first 50 ml. of filtrate. Transfer 3 ml. of the filtrate to a 100 ml. volumetric flask and fill to the mark with diazobenzenesulfonic acid solution prepared by mixing, at least 10 minutes before using, 100 ml. of 1 per cent sulfanilic acid—1 Gm. of sulfanilic acid in 100 ml. of water containing 7.6 ml. of hydrochloric acid—with 3 ml. of 0.5 per cent sodium nitrite. Allow the reaction mixture to stand for 5 minutes. Determine the optical density in a spectrophotometer at 4630 A, using the diazotizing solution as a blank. Compare the density with a standard made by treating 3 ml. of a solution containing 13.25 mg. of pentaquine phosphate (*U. S. P. XIV*) per 100 ml. of 0.1 *N* sulfuric acid with the diazotizing solution as previously described. The amount of pentaquine phosphate is not less than 94 nor more than 106 per cent of the labeled amount.

(Quinine Sulfate) Dilute the filtrate used in the pentaquine phosphate assay (containing 0.3 Gm. of quinine sulfate per 100 ml.) with 0.1 *N* sulfuric acid until a concentration of 15 micrograms per 100 ml. is obtained. Determine the fluorescence in a photofluorometer and compare it with that of a standard containing 15 micrograms of quinine sulfate (*U. S. P. XIV*) per 100 ml. of solution. The amount of quinine sulfate present is not less than 94 nor more than 106 per cent of the labeled amount.

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Tablets Pentaquine Phosphate and Quinine Sulfate: Each tablet contains 10 mg. of pentaquine base (as pentaquine phosphate 13.3 mg.) and 0.3 Gm. of quinine sulfate.

UNDECYLENIC ACID–N.F.—$C_{11}H_{20}O_2$.—M.W. 184.27.—"Undecylenic acid contains not less than 95 per cent and not more than 108 per cent $C_{11}H_{20}O_2$." *N.F.* The structural formula of undecylenic acid may be represented as follows:



Actions and Uses.—Undecylenic acid is one of the more potent fatty acids employed topically as a fungistatic agent in the treatment of superficial fungous infections. Local application occasionally produces irritation and internal use for the treatment of psoriasis or other skin conditions is not established.

Dosage.—Undecylenic acid is applied topically in the form of a solution or emulsion in concentrations not to exceed 10 per cent. This strength may produce burning when applied to mucous membranes; it should therefore be diluted to a 1 per cent concentration for irrigation of these structures.

Tests and Standards.—

For description and standards see the National Formulary under Undecylenic Acid.

SOLUTION. *Physical Properties:* The solution has a *pH* between 6 and 7.

Assay: Weigh to the nearest decigram and transfer quantitatively to a 500 ml. separatory funnel enough undecylenic acid solution to contain about 0.15 Gm. of undecylenic acid. Add 200 ml. of water, 5 ml. of hydrochloric acid and 2 Gm. of sodium chloride. Extract the mixture with two 100 ml. portions of petroleum ether (bp. 30 to 60 C.). Extract the petroleum ether fraction repeatedly with 100 ml. portions of water until the aqueous layers are neutral to litmus. Transfer the petroleum ether fraction to a 400 ml. beaker and heat it on a steam bath until about 5 ml. of liquid remains. Dilute the petroleum ether concentrate with 100 ml. of neutralized alcohol and titrate the solution with 0.1 *N* sodium hydroxide using phenolphthalein T.S. as an indicator. Each ml. of 0.1 *N* sodium hydroxide is equivalent to 0.01843 Gm. of undecylenic acid. The amount of undecylenic acid present is not less than 95 nor more than 105 per cent of the labeled amount.

WALLACE & TIERNAN PRODUCTS, INC., BELLEVILLE 9, N. J.

Desenex Solution Undecylenic Acid 10%: 59.14 cc. and 473 cc. bottles. A solution containing 0.10 Gm. of undecylenic acid in each cc.

SULFADIAZINE-SULFAMERAZINE COMBINED (See New and Nonofficial Remedies 1950, page 126).

The following dosage forms have been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Suspension Duozine: 473 cc. and 3.78 liter bottles; A suspension containing 30 mg. each of sulfadiazine and sulfamerazine in each cc.

ELI LILLY AND CO., INDIANAPOLIS

"Savorets" Sulfonamides Duplex (Flavored Tablets): Each tablet contains 0.125 Gm. each of sulfadiazine and sulfamerazine.

Suspension Sulfonamides Duplex: 473 cc. bottles; A suspension containing 50 mg. each of sulfadiazine and sulfamerazine in each cc.

Tablets Sulfonamides Duplex: Each tablet contains 0.25 Gm. each of sulfadiazine and sulfamerazine.

WILLIAM R. RORER, INC., PHILADELPHIA

Suspension Disulfyn: 60 cc. and 473 cc. bottles; A suspension containing 50 mg. each of sulfadiazine and sulfamerazine.

Tablets Disulfyn: Each tablet contains 0.25 Gm. each of sulfadiazine and sulfamerazine.

METHYLCELLULOSE (See THE JOURNAL, July 8, 1950, page 897).

The following dosage form has been accepted:

CHILCOTT LABORATORIES, MORRIS PLAINS, N. J.

Granules Cellothyl: 25 and 100 Gm. bottles.

Council on Physical Medicine and Rehabilitation

REPORTS OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following reports.

HOWARD A. CARTER, *Secretary.*

MOISTAIRE HEAT THERAPY UNIT, MODEL 420-6, ACCEPTED

Manufacturer: The Ries Corporation, 515 South Aiken Avenue, Pittsburgh 32.

The Moistaire Heat Therapy Unit, Model 420-6, heats and humidifies air under thermostatic control for therapeutic application to large areas of the body. Preheated air enters a mixing chamber into which a small centrifugal pump lifts preheated water. The air which is thus saturated with water-vapor is forced by a blower from the mixing chamber to the treatment hood, where the warm water-vapor condenses on the human part being treated, thus imparting heat to it. The air is then returned to the mixing chamber for reheating and rehumidification, and the circulation maintains a uniform temperature throughout the treatment hood. It is claimed that the desired temperature under the hood can be reached in three minutes.

Moistaire Heat Therapy Unit Model 420-6

The apparatus consists of the following principal parts: (1) a treatment table, on which the patient lies, (2) a treatment hood, which covers the patient's trunk or other part to be treated, (3) a recirculating unit, which heats, humidifies and circulates the air under the treatment hood, and (4) sundry accessories, such as table pad, waterproof curtains and water container.

In all essential respects it resembles Model 420, the acceptance of which was announced in THE JOURNAL March 26, 1949. The Council on Physical Medicine and Rehabilitation voted to include the Moistaire Heat Therapy Unit, Model 420-6, in its list of accepted devices.

OTARION HEARING AID, MODELS F-1 AND F-2, ACCEPTED

Manufacturer: Otarion, Inc., 159 North Dearborn Street, Chicago 1.

Otarion Models F-1 and F-2 are hearing aids which differ only externally. Model F-1 has an aluminum case; F-2 has a molded plastic case. The cases are rectangular with rounded edges; the dimensions, excluding clothing clip and control switch, are 87 by 66 by 24 mm. The weights are as follows: case with contents except batteries, 126 Gm.; batteries, 58 Gm.; receiver and cord, 11.5 Gm. The case opens on hinges to expose the batteries, which are conveniently removable. A magnetic receiver is used.

Otarion Hearing Aid, Model F-1

Having obtained evidence that these two models were sound in construction and satisfactory in operation, the Council on Physical Medicine and Rehabilitation voted to include the Otarion Hearing Aid, Models F-1 and F-2, in its list of accepted devices.

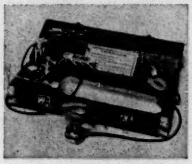
STEPHENSON RESUSCITATOR, MINUTEMAN MODEL, ACCEPTED

Manufacturer: Stephenson Corporation, Red Bank, N. J.

The "Minuteman" Model of the Stephenson Resuscitator is a portable apparatus for artificial respiration. It is a modification of a device (Stephenson Resuscitator, Physician's and Office Models), acceptance of which was announced in THE JOURNAL of Oct. 1, 1949. The present Minuteman Model is also sometimes called the Camp Model.

The apparatus is housed in a carrying case that measures 20 by 23 by 61 cm. (8 by 9 by 24 in.). It weighs altogether 12 Kg. (26 lb.). Crated for shipment it measures 23 by 25 by 64 cm. (9 by 10 by 25 in.). The domestic shipping weight is 13 Kg. (28 lb.), and the foreign, 15.4 Kg. (34 lb.). Included in these weights are infant and adult masks, infant and adult airways, a tank key and a lightweight size D oxygen tank. The height of a D oxygen tank is 19 in. and the diameter 4⅛ in. (48 and 10.5 cm., respectively), while the height of a size E oxygen tank is 26 in. and the diameter 4¼ in. (66 and 10.8 cm., respectively).

This device, like the previous models, is of the intermittent positive and negative pressure type. It can be used as a resuscitator, inhalator or aspirator. Positive and negative pressures are adjusted by means of a dial that reads "adult" and "infant," with intermediate graduations. At the "adult" setting a mask pressure of +13 and —8 mm. of mercury is produced. At the "infant" setting the pressures are approximately +8 and —3 mm. of mercury. These pressures are attained in any position of the respirator. The apparatus is equipped to deliver either pure oxygen or a mixture of oxygen with air. One control permits slowing of rate and increasing of oxygen concentration. The motive power is the pressure in the tank of gas.



Stephenson Minuteman, Camp Resuscitator

The operator is warned to aspirate by a rapid-tripping signal if mucus or froth should clog the throat of the patient. An aspirator is included. It works by a Venturi effect. The aspirator can be used simultaneously with the resuscitator or inhalator. When the apparatus is to be used as an inhalator, the mask is raised slightly, out of contact with the face.

Evidence from sources acceptable to the Council indicated that the apparatus was well made, that it operated as represented by the manufacturer and that it could be used effectively by the experienced layman in life-saving work. This evidence applies also to the Stephenson Portable Resuscitator, accepted in THE JOURNAL Dec. 6, 1947.

The Council on Physical Medicine and Rehabilitation voted to include the Stephenson Resuscitator, Minuteman Model, in its list of accepted devices.

WESTINGHOUSE INFRA-RED HEAT LAMPS, R-40, ACCEPTED

Manufacturer: Westinghouse Electric Corporation, Lamp Division, Bloomfield, N. J.

The two Westinghouse infra-red heat lamps, R-40, are designed for various domestic applications of radiant heat. Both require a 110 to 125-volt current and draw 250 watts; both have a C-9 filament, are gas filled, have an average laboratory life of more than 5,000 hours, are provided with built-in reflectors and fit standard sockets. The smaller lamp measures 16.5 cm. (6½ inches) in length, is made of frosted glass and may be ordered by the abbreviation 250R40/1. The larger measures 17.5 cm. (6⅞ inches) in length, is made of red glass and may be ordered by the abbreviation 250R40/HR.

Evidence from sources acceptable to the Council indicated that these lamps were satisfactory generators of infra-red radiation, and the Council on Physical Medicine and Rehabilitation voted to include the Westinghouse infra-red heat lamps R-40, in its list of accepted devices.

Council on Foods and Nutrition

ACCEPTED FOODS

The following products have been accepted as conforming to the rules of the Council.

JAMES R. WILSON, M.D., *Secretary.*

Beech-Nut Packing Company, Canajoharie, N. Y.

BEECH-NUT STRAINED OATMEAL consists of oat flour, malt syrup, nonfat dried milk solids, powdered beef bone, dried brewer's yeast, salt, sodium iron pyrophosphate and thiamine hydrochloride.

Analysis (submitted by manufacturer).—Total solids 93.8%, moisture 6.2%, ash 5.8%, fat (acid hydrolysis) 7.0%, protein (N × 6.25) 17.0%, crude fiber 1.3%, carbohydrates other than crude fiber (by difference) 64.0%.

Vitamins and Minerals	Per Hundred Grams	
Calcium	1	Gm.
Phosphorus	0.9	Gm.
Iron	50	mg.
Copper	1	mg.
Thiamine	1.62	mg.
Riboflavin	1.59	mg.
Nicotinic acid	3.17	mg.

Calories.—3.9 per gram; 110 per ounce.

Use.—For use in the feeding of infants and young children.

Chicago Dietetic Supply House, Inc., Chicago, Ill.

CELLU BRAND WHITE WHEAT BREAD consists of enriched unbleached wheat flour, water, hydrogenated vegetable fat, cane sugar, yeast, and mold preventing agent (0.02% lactic acid).

Analysis (submitted by manufacturer).—Moisture 33.00%, ash 0.31%, protein (N × 5.7) 7.80%, fat 4.00%, carbohydrates (by difference) 54.62%, crude fiber 0.27%, sodium (as Na) 0.004%, potassium (as K) 0.06%.

Calories.—2.84 per gram; 80.4 per ounce.

Use.—For use in the diets of those who must restrict their sodium intake.

The Gerber Products Company, Fremont, Mich.

GERBER'S JUNIOR CHOPPED SWEET POTATOES. Ingredients: Sweet potatoes, salt and water necessary for preparation.

Analysis (submitted by manufacturer).—Total solids 22.12%, moisture 77.88%, ash 0.94%, fat (ether extract) 0.12%, protein (N × 6.25) 0.97%, crude fiber 0.49%, carbohydrates other than crude fiber (by difference) 19.60%.

Vitamins and Minerals	Per Hundred Grams	
Vitamin A (Carotene)	1,707	U.S.P. Units
Thiamine	0.0727	mg.
Riboflavin	0.0370	mg.
Ascorbic acid	9.866	mg.
Nicotinic acid	0.419	mg.
Calcium	21.8	mg.
Phosphorus	38.7	mg.
Iron	0.42	mg.

Calories.—0.83 per gram; 23.53 per ounce.

Use.—For use in the feeding of older infants and young children.

Gorton-Pew Fisheries Company, Ltd., Gloucester, Massachusetts. Distributed by the Beech-Nut Packing Company, Canajoharie, New York.

GORTON'S STRAINED CODFISH FOR BABIES. Ingredients: Atlantic Ocean codfish, salt, sodium metaphosphate to retard crystallization, monosodium glutamate and water.

Analysis (submitted by manufacturer).—Total solids 18.7%, protein (N × 6.25) 15.49%, fat 0.26%, ash 1.48%.

Vitamins and Minerals	Per Hundred Grams	
Phosphorus	210	mg.
Iodine	50	mcg.
Fluorine	50	mcg.
Choline	109	mg.
Riboflavin	34	mcg.
Nicotinic acid	1.09	mg.
Vitamin (B_{12}) Activity	0.05	mcg.
Pantothenic acid	183	mcg.
Folic acid	15	mcg.
Thiamine	3	mcg.

Calories.—0.64 per gram; 18.1 per ounce.

Use.—For use in the feeding of infants and young children.

Libby, McNeill & Libby, Chicago, Illinois.

LIBBY'S JUNIOR FOODS—PEACHES consists of yellow Cling Peaches and sugar.

Analysis (submitted by manufacturer).—Total solids 18.10%, moisture 81.90%, ash 0.27%, fat 0.08%, protein (N × 6.25) 0.61%, crude fiber 0.37%, carbohydrates other than crude fiber (by difference) 16.74%, sucrose 10.20% and reducing sugars 7.04%.

Vitamins and Minerals	Per Hundred Grams	
Carotene	0.41	mg.
Thiamine	0.012	mg.
Ascorbic acid	0.93	mg.
Calcium	4.6	mg.
Phosphorus	19.3	mg.
Iron	0.34	mg.

Calories.—0.70 per gram; 19.8 per ounce.

Use.—For use in the feeding of older infants and young children.

LIBBY'S JUNIOR FOODS—APPLE SAUCE consists of apples and sugar.

Analysis (submitted by manufacturer).—Total solids 17.40%, moisture 82.60%, ash 0.26%, fat 0.19%, protein (N × 6.25) 0.27%, crude fiber 0.60%, carbohydrates other than crude fiber (by difference) 16.0%, sucrose 1.83% and reducing sugars 13.2%.

Vitamins and Minerals	Per Hundred Grams	
Thiamine	0.013	mg.
Ascorbic acid	1.05	mg.
Calcium	6.8	mg.
Phosphorus	9.8	mg.
Iron	0.38	mg.

Calories.—0.67 per gram; 19.0 per ounce.

Use.—For use in the feeding of older infants and young children.

LIBBY'S JUNIOR FOODS—PRUNES consists of dried prunes, pineapple juice, lemon juice and water.

Analysis (submitted by manufacturer).—Total solids 23.12%, moisture 76.88%, ash 0.45%, fat 0.21%, protein (N × 6.25) 0.83%, crude fiber 0.39%, carbohydrates other than crude fiber (by difference) 21.24%, sucrose 1.2% and reducing sugars 14.2%.

Vitamins and Minerals	Per Hundred Grams	
Thiamine	0.016	mg.
Ascorbic acid	1.85	mg.
Calcium	20.3	mg.
Phosphorus	23.3	mg.
Iron	0.67	mg.

Calories.—0.91 per gram; 25.8 per ounce.

Use.—For use in the feeding of older infants and young children.

Neuman Pastry Shops, Chicago.

NEUMAN'S SALT FREE WHITE WHEAT BREAD. Ingredients: Unbleached enriched wheat flour, cane sugar, shortening (100% cottonseed oil hydrogenated), yeast and lactic acid (edible N.F. 85%).

Analysis (submitted by manufacturer).—Total solids 67.0%, moisture 33.0%, ash 0.31%, fat 4.00%, protein (N × 5.7) 7.80%, crude fiber 0.27%, carbohydrates other than crude fiber (by difference) 54.62%, sodium 0.004%, potassium 0.06%.

Calories.—2.84 per gram; 80.4 per ounce.

Use.—For use in sodium restricted diets.

NEUMAN'S SALT-FREE CAKE. Ingredients: Soft wheat flour, cane sugar, shortening (100% cottonseed oil hydrogenated), frozen egg yolks, vanilla (pure bean with 35% alcohol).

Analysis (submitted by manufacturer).—Total solids 84.0%, moisture 16.0%, ash 0.38%, fat 29.00%, protein (N × 6.35) 5.37%, carbohydrates (by difference) 49.25%, sodium 0.01%, potassium 0.05%.

Calories.—4.79 per gram; 135.0 per ounce.

Use.—For use in sodium restricted diets.

NEUMAN'S WHEAT-FREE RYE BREAD. Ingredients: Pure rye flour (bleached), brown cane sugar, shortening (100% cottonseed oil hydrogenated), salt, yeast and lactic acid (edible N.F. 85%).

Analysis (submitted by manufacturer).—Total solids 67.70%, moisture 32.30%, ash 2.39%, fat 4.24%, protein (N × 6.25) 6.35%, crude fiber 0.74%, carbohydrates other than crude fiber (by difference) 53.98%.

Calories.—2.81 per gram; 79.5 per ounce.

Use.—For use in certain allergy diets.

NEUMAN'S WHEAT-FREE CAKE. Ingredients: Mandioca (sometimes called tapioca) flour, cane sugar, shortening (100% cottonseed oil hydrogenated), egg yolks, whole eggs, salt, vanilla (pure bean) and pure almond extract.

Analysis (submitted by manufacturer).—Total solids 84.00%, moisture 16.00%, ash 1.16%, fat 28.50%, protein (N × 6.25) 3.38%, carbohydrates (by difference) 50.96%.

Calories.—4.73 per gram; 134.0 per ounce.

Use.—For use in certain allergy diets.

Swift and Company, Chicago.

SWIFT'S STRAINED LIVER AND BACON. Ingredients: Beef liver, bacon, water (as broth) and salt.

Analysis (submitted by manufacturer).—Total solids 21-23%, moisture 77-79%, ash 1.4%, fat 6-8%, protein (N × 6.25) 12%, salt 0.6%.

Vitamins and Minerals	Per Hundred Grams	
Calcium	11.5	mg.
Phosphorus	216	mg.
Iron	3.9	mg.
Thiamine	0.04	mg.
Riboflavin	3.0	mg.
Nicotinic acid	6.5-7.5	mg.

Calories.—1.25 per gram; 35.6 per ounce.

Use.—For use in the feeding of infants, convalescents and others requiring a soft diet.

SWIFT'S CHOPPED LIVER AND BACON. Ingredients: Beef liver, bacon, water (as broth) and salt.

Analysis (submitted by manufacturer).—Total solids 29.3%, moisture 70.7%, ash 1.4%, fat 7.5%, protein (N × 6.25) 16%, salt 0.6%.

Vitamins and Minerals	Per Hundred Grams	
Calcium	10	mg.
Phosphorus	200	mg.
Iron	4	mg.
Thiamine	0.04	mg.
Riboflavin	2.5	mg.
Nicotinic acid	7.0	mg.

Calories.—1.50 per gram; 42.5 per ounce.

Use.—For use in the feeding of older infants and young children.

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EXPOSURE OF QUACKS

During the past year metropolitan newspapers in Chicago, Cleveland, San Francisco, Memphis and elsewhere have made notable contributions in the fight against quackery in the healing arts. These papers have devoted much time and effort to exposing medical fakes and frauds in the areas which they serve. The resulting exposures have, in certain instances, had the benefit of regulatory follow-up. There have been some convictions for unauthorized practice of medicine. Others are pending, and a few licensed persons are threatened with revocation of the privilege they have been abusing.

The management and those directly participating in these quack exposure series deserve commendation and congratulation. The reporters have posed in some instances as patients and have subjected themselves to a certain element of physical danger. They have matched wits with persons who live by their wits. To one Chicago newspaper fell the task of defending a million dollar libel suit brought by a quack it had exposed. His approach to the treatment of disease was so different that it is difficult to believe that intelligent persons could have fallen for his "line." After two weeks of the trial, during which time the quack himself was on the stand, the revelation of facts was so revolting that the court instructed the defendant's lawyer to move for a directed verdict—he did not want to make a three ring circus out of his courtroom.

In Cleveland the quacks were "shopped" by representatives of the Better Business Bureau. The resulting exposé brought forth angry protests that the "drugless healers" were unfairly dealt with. The protests, of course, came from the "drugless healers" themselves. The Memphis series, which was carried in other cities having papers under the same ownership, exposed those eager to help—at a fee, of course—even a child stricken with a malignant disease, which resulted in the loss of an arm. The quacks and many well meaning but ill advised persons counseled against the only known means whereby the child's life might be spared.

Quacks flourish everywhere and even have in their coterie the names of prominent persons. When one is exposed, the great majority ask the inevitable question, "Why doesn't someone do something about it?" Unfortunately, the action, if any, is too often left to that "someone." The daily newspapers in the instances already cited have exposed themselves and their employees to considerable risk and rightfully should have the gratitude of their readers.

But others must lend them support, whether through individual exposure or court action. To the list of newspapers which have already contributed space and effort to the constant fight against quackery, there should be added the names of others who should plan campaigns of this kind. The quack usually fears publicity. Unfortunately his injured patients dislike admitting that they have been bilked and are reluctant to testify against him. Hence exposure seems to be the most effective means of combating irrationality in medicine as a menace to public health.

As a follow-up to such campaigns, there have been excellent examples of vigorous prosecution of those exposed as fakers. This is true particularly in Illinois. Unfortunately, however, the courts have not always been as effective as the law-abiding citizens would desire. The statutes provide severe punishment for the theft of one's goods, but it appears at times to be only a misdemeanor to rob a man of his health. The difficulty occurs when courts are loath to impose the maximum penalties when guilty verdicts are returned. Such action on the part of the courts, imposing minor instead of major penalties, is hardly conducive to vigorous enforcement of the law. These penalties merely become license fees to the defendant, enabling him to persist in his nefarious activity.

Of course, the courts cannot move without the necessary evidence, much of which must come from the actions of public-spirited citizens and professionally trained or otherwise expert persons. Physicians can be particularly helpful, as their principles of medical ethics require them to "expose, without fear or favor, incompetent or corrupt, dishonest or unethical conduct on the part of members of the profession" and to "bear their part in enforcing the laws of the community and in sustaining the institutions that advance the interests of humanity."

HODGKIN'S DISEASE VIRUS

Since Gordon's[1] report in 1934, numerous suggestions have been made as to the possible virus etiology of Hodgkin's disease. In tests made by Bostick[2] of the Division of Pathology, University of California, Seitz-filtered extracts of fresh lymph nodes from patients with Hodgkin's disease were injected into the amniotic sacs of seven day old chick embryos; control injections were made with extracts of material from subjects with malignant diseases other than Hodgkin's disease. A slight lethal effect was noted in the series inoculated with the Hodgkin's disease material. Since

1. Gordon, M. H.; Gow, A. E.; Levitt, W. M., and Weber, F. P.: Proc. Roy. Soc. Med. **27**: 1035 (June) 1934.
2. Bostick, W. L.: J. Immunol. **59**: 189 (June) 1948.

this was continued during serial passage of the extract, it suggests a multiplication of some toxic or infectious factor, presumably a virus, in the amniotic fluid.

Further evidence of the virus nature of this amniotic factor was afterward sought by Bostick [3] by application of the technic of virus antagonism. It is well known that two viruses grown or inoculated together may inhibit each other. Groups of seven day old chick embryos were inoculated with passage amniotic fluids, one group with Hodgkin's disease material and the other with control material. After 72 hours' incubation, 0.02 cc. of Lee virus of known hemagglutinative titer was injected into the same amniotic sacs. After 24 hours the amniotic fluids were examined and their hemagglutinative titers for the amount of Lee virus [4] determined. In essentially all cases the agglutination titer was significantly less in amniotic fluid inoculated with Hodgkin's disease extract than in the controls. This is interpreted as evidence of a growth-inhibiting property of the Hodgkin's disease factor (virus?). Since the factor was present in all lymph nodes from nine patients with Hodgkin's disease and was not found in the nodes of four control patients, the California pathologist believes that it may be of etiological significance.

USE OF BLOOD GROUPS IN HUMAN CLASSIFICATION

The layman's concept of race is based on differences in the appearance and behavior of the different groups. This attitude, Boyd [1] points out, has been unconsciously retained by many scientific workers. In recent years there has been a trend on the part of both geneticists and physical anthropologists to apply genetic methods to the problems of classification of man. Fairly adequate information about the mode of transmission of blood group genes was obtained before any information equivalent in amount or value was obtained about the genes affecting physical appearance. The genes which could be more useful in anthropology are the blood group genes.

L. and H. Hirshfeld showed in 1919 that agglutinogen A (characteristic of group II) predominates greatly over B in the population of northern Europe and that agglutinogen B (characteristic of group III) predominates in Asia and Africa. The two are about equal in certain intermediate races. These authors classified the races examined on the basis of the "racial index"—the ratio of the percentage of A to the percentage of B in the population. Those races having an index of more than 2 were assigned to the European type, those with an index of less than 1 to the Asia-African type, and those with an index between 1 and 2 to the intermediate type. Ottenberg [2] proposed, in 1925, six strikingly different types based on blood groups. He argued that the qualities A and B are inherited in a typical mendelian manner and that the proportions of the four blood groups in a given population, provided no outside admixture occurs, can remain practically the same for an indefinite number of generations.

Wiener [3] proposed a racial classification based on the O, A, B and Rh factors. He felt that the discovery of the Rh blood types has considerably enhanced the value of blood tests in anthropological investigations and is largely responsible for the recently increased interest in anthropologists in blood grouping. Blood tests are of value in that they can be readily and accurately determined at any time during life, since they remain unchanged from birth to death and are not influenced by disease or other environmental agents. Moreover, their occurrence is predictable on the basis of simple mendelian laws of heredity. These advantages do not exist in the case of certain other characteristics studied by anthropologists, such as height, shape of the head and face and color of hair. These observations confirm the broad separation of mankind into three divisions, characterized as follows: Caucasoid group, highest incidence of gene r, relatively high incidence also of genes R^1 and A^2, moderate frequencies of other blood group genes; Negroid group, highest incidence of gene r^0, moderate frequency of r, highest relative incidence of genes A^2 and the rare intermediate A and Rh genes, and Mongoloid group, virtual absence of genes r and A^2, highest incidence of rare gene R^0.

Boyd has suggested a racial classification based on gene frequency which differs only slightly from Wiener's. He points out that the six genetically determined races conform in a broad way to geography. Striking differences in the frequency of certain genes mark off the inhabitants of the various continents. This new classification does not really differ in a remarkable way from some of the older classifications based on such traits as skin color and hair form.

The genetic classification of races is more objective and is better founded scientifically than older classifications. The differences one finds between races are inherited in a known manner, are not influenced by environment and are thus fundamental. Boyd points out that in certain parts of the world a person will be considered "inferior" if he has, for instance, a dark skin, but in no part of the world does the possession of a blood group A gene, or even an Rh negative gene, exclude him from the best society. There are no prejudices against genes. The genetic method of race classification gives promising results. One interesting revelation is that it offers no indication of the existence of any inherited racial superiority or inferiority.

3. Bostick, W. L.: Proc. Soc. Exper. Biol. & Med. **74**: 519 (July) 1950.
4. Salk, J. E.: J. Immunol. **49**: 87 (Aug.) 1944.
1. Boyd, W. C.: Use of Blood Groups in Human Classification, Science **112**: 187-196 (Aug. 18) 1950.
2. Ottenberg, R.: A Classification of Human Race Based on Geographic Distribution of the Blood Groups, J. A. M. A. **84**: 1393-1395 (May 9) 1925.
3. Wiener, A. S.: Recent Developments in the Knowledge of the Rh-Hr Blood Types; Tests for Rh Sensitization, Am. J. Clin. Path. **16**: 477-497 (Aug.) 1946.

GENERAL PRACTITIONERS AND HOSPITALS

The modern graduate, trained in the technics of scientific medicine, can apply his knowledge only if he has access to adequate hospital facilities. In addition, the hospital is vital to the continuing education of the practitioner. The opportunities that it offers for study, scientific practice and association with more skilful colleagues are essential to the young physician who seeks to increase his abilities and better to serve his patients.

The American Academy of General Practice has prepared "A Manual on the Establishment and Operation of a Department of General Practice in Hospitals." The chief purpose of this manual is to present a plan for the integration of a general practice section in the medical staff. Because in the past the organization of hospital services has emphasized the special skills of those who devote themselves to a particular field of medicine, the recognition of general practice by hospitals has been limited. However, the general practitioner is regarded as the backbone of American medicine, and there are significant reasons for assuring him a place of responsibility and prestige on hospital staffs.

In the preparation of the Manual the Academy obtained advice from representatives of the American Medical Association, the American College of Surgeons and the American Hospital Association. Subsequently the completed form was endorsed by the American College of Surgeons, and at the San Francisco Session in June 1950 the House of Delegates of the American Medical Association extended official commendation to the Academy for its initiative in the preparation of the manual. This material, which has been distributed by the Academy to all general hospitals in the United States, offers a workable plan for the organization of general practice sections in hospitals and will serve as a useful guide in the assignment of staff privileges to individual applicants. This manual can be employed usefully in the organization of hospital facilities and privileges so that the qualified general practitioner may have a better opportunity to fulfil his responsibility to the patients under his care.

In suggesting guides for the organization and integration of general practitioner services in the hospital field, the manual advocates the basic philosophy that the general practitioner as well as the specialist should be able to use the modern hospital to the degree that his training and experience warrant. To achieve this purpose it is recommended that the medical staff be organized into at least three departments consisting of medicine, surgery and general practice and that within the latter section the general practitioner be extended hospital privileges in the practice of internal medicine, pediatrics, obstetrics and surgery as determined for each applicant by the credentials committee of the staff.

A mechanism has likewise been established for the evaluation of the qualifications and ability of those members of the general practice staff who feel that they have had the necessary training and experience to engage in more advanced work within a specialty field. This places a tremendous responsibility on the credentials committee. On its honest and objective judgments depend the welfare of the patient and the integrity of the hospital. The greatest care must be exercised that the applicant receive fair consideration in the evaluation of his credentials and that pressure groups do not develop within the staff that would influence the assignment of privileges not warranted by the applicant's training and experience or, on the other hand, unduly restrict a competent person in his hospital practice.

The extension of hospital privileges in accordance with qualifications and demonstrated ability is in harmony with the standards of the Council on Medical Education and Hospitals, which specify that the medical staff should be composed of graduates in medicine who are properly qualified by training, licensure and ethical standing and are proficient in the fields of practice to which they devote themselves. A Section on the General Practice of Medicine was established by the American Medical Association in 1945. To further clarify the Association's position with respect to hospital privileges for general practitioners the House of Delegates adopted in 1946 a resolution stating that appointments to general practice sections should be made by hospital authorities on the merits and training of individual physicians and that the establishment of a general practice section shall not prevent the approval of hospitals for the training of interns or resident physicians.

In implementing the intent of this resolution the Council on Medical Education and Hospitals stated in a special report to the House of Delegates in June 1947:

> At the direction of the House of Delegates of the American Medical Association some years ago, the Council on Medical Education and Hospitals formulated standards for the establishment of American boards for the certification of specialists and for the conduct of hospital residencies providing training in the various special fields of medicine. The aim was to improve the quality of training at this level of medical education. The physician responsible for directing such hospital training should himself have had training and experience approximately equivalent to that required of certification applicants, whether or not he is actually certified. But it was never intended that staff appointments in hospitals generally, or even in hospitals approved for residencies, should be limited to board certified physicians, as is now the policy in some hospitals. Such policies, if practiced extensively, are detrimental to the health of the people and therefore to American medicine. Hospital staff appointments should depend on the qualifications of physicians to render proper care to hospitalized patients, as judged by the professional staff of the hospital, and not on certification or special society memberships.

On the further recommendation of the Council on Medical Education and Hospitals in 1947 the standards governing the registration of hospitals by the American Medical Association were modified in such a manner as to encourage the establishment of general practice sections in hospitals.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

The violent and vulgar attacks being made on the medical profession by those who would like to see it socialized are direct—if distasteful—evidence that the doctors of America have driven their message home. Those who cannot rally truth to their side usually resort to epithets.

Incidentally, my memorandum to all members of Congress, reprinted here two weeks ago, has elicited from many Congressmen the most vigorous denunciation of Representative John D. Dingell's misuse of the *Congressional Record* for propaganda purposes and also of the unwarranted attacks on the medical profession by the Ewings and Biemillers. I shall quote some of them at a later date. It looks as if Oscar Ewing and his crew unwittingly have played into our hands by arousing the indignation of newspapers over such gratuitous insults to a free press and its legitimate advertisers.

Much pleasanter evidence of nationwide support has come from medicine's friends in other professions and businesses, in the form of tie-in advertising. It is too early yet to give a complete report on the amount of such advertising, but a special staff at National Education Campaign headquarters is working overtime tabulating the tie-in ads in some 11,000 newspapers.

It is a tremendous task and, of course, it will take a little more time before a final estimate can be made. But from early indications the total expenditure for tie-in advertising will in all probability match the Association's total advertising budget, and possibly double it. This will be a superb achievement by our friends who believe, as we do, that the voluntary, not the compulsory, way is the American way.

Here are a few outstanding examples of what various newspapers did: The *Boston Post* sold approximately eight full pages of tie-in advertising; the *Des Moines Register and Tribune* six. The *Post Dispatch* led all St. Louis papers with nearly two pages, exceeding the American Medical Association space by more than four to one. The *Star Times* carried more than a page, or three to one; the *Globe Democrat* doubled our lineage. The *Watertown News*, New York, a weekly, sold more than four pages, the equivalent of two standard size pages. Early indications are that at least half the nation's newspapers carried tie-in advertising, and those that did averaged 10 such advertisements apiece. These range in size from the small two-inchers to full page Freedom Roll Calls.

In the radio field, there also is good news. The final reports from all participating stations, more than 1,500 in all, will not be received until October 30. But more than half the stations reporting early had sold tie-in spot commercials, ranging from five 15 second spots in one case up to 372 one minute spots in another. Many stations reported that they had sold all available time. One Mutual Broadcasting System outlet, KLPM in Minot, N. D., sold 120 spots—all its available time—within a period of two hours! As our radio agency reported, no one yet has invented a time stretcher (something we doctors could well use). Otherwise, the radio tie-in sales would have been even greater.

Another time element, that of mechanical deadlines, prevented the national magazines from accepting much tie-in advertising. Mutual of Omaha was able, however, to place full page advertisements in the *Saturday Evening Post* and *Time* magazine. A number of Sunday newspaper supplements had flexible enough deadlines to enable them to accept a gratifying number of tie-in advertisements. The *Nashville Tennessean*, for instance, carried 136 inches, almost twice the space taken by the A. M. A. advertisement.

To give even further indication of the splendid cooperation the medical profession has received from its allies, I want to quote from several of the many letters Dr. Bauer and I have received and that have come to campaign headquarters:

M. N. Newquist, medical director of The Texas Company, said, "We are in complete sympathy with your opposition to Compulsory Health Insurance, realizing that such compulsory insurance is a step toward socialization and curbing of freedom and of private enterprise generally."

Wm. G. Werner, manager, Division of Public Relations, the Proctor and Gamble Company: "We have the greatest sympathy for all such movements (as) the AMA's current campaign to rally all Americans in a nationwide reaffirmation of faith in freedom."

J. M. Crews, President of The Southeastern Hospital Conference: "We will cooperate in every way with your campaign against socialized medicine. . . . We are as vitally interested as you are in retaining our present status of free enterprise in the medical and hospital fields."

Ashton B. Collins, New York, representative of 240 light and power companies: "We are anxious to cooperate to the fullest with your group in this common cause."

There are many other spontaneously submitted letters which are just as heart warming. Even before the final returns of our advertising campaign are in, I think we doctors have reason to rejoice that such a large and representative segment of the American people share with us a firm faith in the ability of a free people to work out its own destiny without the compulsion of a bureaucratic government.

Elmer L. Henderson, M.D.
Louisville, Ky.

WASHINGTON NEWS

(From the Washington Office of the American Medical Association)

Regulations Covering the Doctor Draft

Following is a condensation and explanation of the regulations for operation of the doctor-draft (P. L. 779) as given in an executive order by the President, dated October 12, and in Selective Service Operations Bulletin 8.

Priorities.—On October 16, physicians in the first and second draft law priorities were required to register. First priority: Former ASTP or V-12 students or others deferred during World War II to continue their education and who subsequently served less than 90 days. Second priority: Men similarly deferred but who served more than 90 days and less than 21 months. Although both priorities registered the same day, Selective Service has decided to process the first priority first. Registration for all other physicians not yet 50 years old and not in military reserves will be scheduled for some time prior to Jan. 16, 1951.

Induction Dates.—Prospects are that inductions in large numbers will not begin until late in December. The target date for completion of processing, except for physical examinations, is December 1. Physical examinations of first priority men need not be completed until December 15, with second priority to follow. Orders to report for induction—in most cases coming after December 1—still allow the registrant 21 days to settle his personal affairs.

Order of Induction.—State and local quotas will not be established on the basis of total registration as in the general draft but on the basis of the number of registrants in the various categories. This is to insure that the men the law was designed to procure—government-educated and others with little or no service—will be called first. Within any category, the youngest will be called first. When other World War II veterans are required to register, they will be broken down into subcategories, based on amount of service measured by full months. If it is necessary to reach into these groups, the age factor again will be applied in determining order of induction.

Volunteers.—The Army is undertaking to offer a reserve commission to every registrant at the time he takes his physical examination and before his induction. However, a physician can volunteer for any military service up to the time he is inducted. When informed a man has received a reserve commission, or gone on active duty, Selective Service will place his name in a special classification and will not consider him draft eligible. Under the law, men involuntarily inducted may not receive the $100 monthly pay bonus which goes to volunteers.

Physical Examinations.—State Selective Service directors are arranging with Army area commanders to conduct special physical examinations for physician, dentist and veterinarian registrants. These will begin some time prior to November 15. As noted above, at this time the Army will offer commissions, and a lenient policy will govern the granting of waivers by the Army for physical defects which would not interfere with the performance of a medical officer's duties. Neither Army nor Selective Service officials would state what action would be taken with a registrant who persisted in declining a commission under these circumstances. However, under the law he could be inducted and made to serve in the ranks.

Deferments.—Volunteer Advisory committees to local Selective Service boards will generally make these decisions, but boards have final authority and need not accept the verdict of the committees. The presidential order says registrants shall be deferred as hardship cases "only if it is determined that (their) induction into the armed forces would result in extreme hardship and privation to a wife, child, or parent with whom he maintains a bona fide family relationship in their home. . . ." The order says deferment because of essential service to community shall be granted only "when his induction would cause the availability of essential health services to fall below reasonable minimum standards" in his community.

Classifications.—Nondeferred physicians will be classed as 1-A. Grouped with 1-A for purposes of induction will be conscientious objectors to combatant service, with the classification of 1-A-O. Deferred classes follow in this order: 4-E, conscientious objectors to combatant or noncombatant service with armed forces; 1-D, registrants who are or become members of military reserves following registration; 2-A, those whose service to their community has been found to be essential; 3-A, those whose induction would cause undue family hardship; 4-A, sole surviving son of a family, some of whose other sons have died in military service; 4-F, deferments for physical and mental causes or for other reasons not acceptable to military; 5-A, registrants who reach their fifty-first birthday, and 1-C, men on active military duty or who subsequent to registration complete the required period of military duty.

Important Dates in Draft.—The following schedule represents the order in which Selective Service hopes to operate induction machinery: October 18, state directors report to national headquarters total numbers of physicians, dentists and veterinarians registered. October 23, local boards begin classification, with emphasis on first priority, whose classification is to be completed not later than November 15. October 31, reports to be filed on total registration, with breakdown on numbers found to be available and nondeferred. November 15, special physical examinations start not later than this date, examinations for first priority to be completed before December 15. December 1, local boards to mail in "Reports of Availability and Summary of Classification," containing all pertinent information on registrants except possibly for physical examination data.

Conferences with State Society Officers

A new system is being used this fall to give state medical society leaders a better knowledge of the American Medical Association's Washington legislative problems. Dr. Joseph S. Lawrence, director of the A. M. A. Washington office, will meet with representatives from the states at a series of meetings arranged in conjunction with Dr. Dwight Murray's Committee on Legislation. Dr. Lawrence has met with groups from 11 Southern states (Georgia, Florida, North Carolina, South Carolina, Alabama, Tennessee, Texas, Oklahoma, Louisiana, Mississippi and Arkansas) and discussed the organization of the Washington office, reviewed progress of legislation during the last Congress and outlined some of the questions which will come up before the next Congress. His itinerary for the remaining meetings is as follows: November 9, St. Francis Hotel, San Francisco—representatives from California, Oregon, Washington and Nevada. November 12, Sirley-Savoy, Denver—representatives from Colorado, Utah, New Mexico, Wyoming, Montana, Arizona and Idaho. November 15, Paxton Hotel, Omaha—representatives from Nebraska, Kansas, Missouri, Iowa, Minnesota, North Dakota and South Dakota. November 18, Sherman Hotel, Chicago—representatives from Wisconsin, Michigan, Ohio, Illinois and Indiana. November 21, Copley Plaza, Boston—representatives from Massachusetts, Maine, New Hampshire, Rhode Island, Connecticut and Vermont. November 28, Academy of Medicine, Philadelphia—representatives from Pennsylvania, New York, New Jersey, Maryland and Delaware.

GOVERNMENT SERVICES

Army

Medical Care of Soldiers in Korea

Returning from a three week tour of the Far Eastern Command, Army Surgeon General R. W. Bliss reports that medical care of American fighting men is the best ever achieved. After visiting all Army hospitals in Korea and Japan, he said the percentage of wounded who returned to the front would probably exceed that of World War II, when three out of every four men went back on active duty. In one evacuation hospital, in which 18,000 patient had been treated in three months, only 40 deaths were reported, while in forward area hospitals deaths averaged about 1 in 100.

Reporting on disease control in Korea, General Bliss emphasized that the peak of the fighting in Korea had been during the malaria season, but reports of cases of that disease were very low. There were no cases of smallpox, tetanus, cholera or the plague, in spite of the fact that some of the worst epidemics of these diseases ever recorded occurred in Korea. He attributed this lack of disease to "total" Army medicine. This, he explained, hinged on four things: efficient planning and administration, Army preventive medicine programs, the high level of professional accomplishment of military physicians and other personnel and the laboratory and research facilities of the Far Eastern Command.

General Bliss pointed out that the medical personnel in Korea and Japan were all regular Army physicians with the exception of 100 reserve physicians participating in the Army residency program at the time of the outbreak of the Korean war. These 100 young doctors had been sent to Korea from their residencies in Army hospitals in this country, and the majority of them have asked for commissions in the regular Army, according to General Bliss.

Public Health Service

Courses in Laboratory Diagnosis

Three short courses in laboratory diagnosis will be given early in November by the Laboratory Division of the Communicable Disease Center of the Public Health Service. The first course, on the serologic diagnosis of rickettsial diseases, will be held November 6-10 at the center's bacteriology laboratories in Chamblee, Ga. Another one week course will be on virus isolation and identification technics. It will be held November 13-17 at the center's virus and Rickettsia laboratories in Montgomery, Ala. The course is designed to give laboratory workers an intensive review of general technics and methods employed in the isolation and identification of viruses responsible for diseases of man. A two week course on the identification of medically important arthropods will be held November 13-24 at the center's parasitology laboratories in Atlanta, Ga. The first week will be devoted to a study of the methods of preparing specimens for identification; the second week will include practice in the examination of arthropods.

Employees of state and local public health department laboratories are given first consideration, but applicants from hospitals and nonprofit laboratories are eligible for the courses when vacancies exist. Applicants must have approval for the training from their state health officer. There is no tuition charge or laboratory fee, but travel and living expenses must be arranged for and paid by the individual or his employer. Information may be obtained from the Laboratory Division, Communicable Disease Center, 291 Peachtree Street, N.E., Atlanta, Ga.

Criteria for Evaluating Cancer Tests

A program for evaluating cancer diagnostic tests has been issued by the National Cancer Institute. The plan is outlined in *Cancer Diagnostic Tests* (Publication No. 9), prepared by Dr. John E. Dunn Jr. and Samuel W. Greenhouse. The plan establishes criteria for evaluating cancer diagnostic tests—specifically those suitable for mass screening. The plan, plus appropriately modified criteria, can be used to evaluate diagnostic tests for different purposes, e. g., differential diagnosis. In addition, statistical procedures have been developed to aid in analysis of data. These procedures may be used for evaluating diagnostic tests for other diseases.

The plan was developed as part of a program begun two years ago to evaluate cancer diagnostic tests when an examination of tests reported in the literature indicated that data presented were inadequate for the prediction of practical usefulness of the tests. Laboratories participating in the program are at the universities of Washington, Tennessee, Kansas, Alabama and Tufts. In addition, many aspects of diagnostic tests development receive aid through special grants awarded by the National Cancer Institute.

Air Force

Conference for Consultants and Command Surgeons

The United States Air Force Medical Service held a conference October 6-8 at the Pentagon, Washington, D. C., for members of its national medical civilian consultants group and surgeons from the major USAF commands. About 30 specialists met with Major Gen. Harry G. Armstrong, the Surgeon General, and members of his staff to discuss plans and policies for the Air Force Medical Service. Among the subjects discussed were the medical personnel, medical planning and mobilization, including the blood program, and biologic defense activities. Addressing the first morning session were Gen. Hoyt S. Vandenberg, USAF Chief of Staff; Dr. Richard L. Meiling, Department of Defense Director of Medical Services, and General Armstrong. The doctors of medicine who attended the conference were W. Paul Holbrook, professor of medicine, University of Arizona, (chairman); Cortez F. Enloe and Frank Fremont-Smith, New York; R. Lee Clark Jr., Houston, Texas; Samuel J. Crowe, Baltimore; Nicholas J. Giannestras, Cincinnati; Elmer L. Henderson, Louisville, Ky.; Phillip T. Knies, Columbus, Ohio; Russel V. Lee, Palo Alto, Calif.; W. Randolph Lovelace II, Albuquerque, N. Mex.; Gilbert H. Marquardt, Chicago; Robert E. Moran, William A. Morgan and Edward B. Tuohy, Washington, D. C.; John M. Murray, Boston; Alton Ochsner, New Orleans; Alfred R. Shands, Wilmington, Del.; Herbert B. Wright, Cleveland, and Jessie Wright, Leetsdale, Pa.

Personal

Col. Robert J. Benford (MC) has been assigned as surgeon of the U. S. Air Force Research and Development Command, Washington, D. C. Previously Colonel Benford was chief of the Engineering Development Division of the Armed Forces Medical Procurement Agency, Fort Totten, N. Y.

MEDICAL NEWS

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Cancer Genetics Research Laboratory.—The Cancer Research Genetics Laboratory is now functioning as a link in the University of California's statewide program of cancer research. Located on the Berkeley campus, the new laboratory is a part of the department of zoology and eventually will be housed in specially designed quarters provided for by a legislative appropriation of $160,000. Kenneth B. DeOme, Ph.D., associate professor of zoology, has been appointed director. The laboratory has a threefold objective. It will carry out a research program in the field of cancer genetics, will provide appropriate animals for experimental work for all university cancer research projects and will serve as a workshop and clearinghouse of information and technics in cancer genetic research for other departments.

Rural Medical and Surgical Programs.—The California Medical Association, cooperating with local county medical societies and medical schools has started a series of two day medical and surgical programs intended primarily to reach nonmetropolitan areas. These are being conducted in October and November of this year and in January, February and March of next year. The first program, the Santa Barbara Medical and Surgical Institute, was furnished by the College of Medical Evangelists, Loma Linda-Los Angeles. A similar program is in preparation for Fresno, November 2-3, with lecturers from the University of California at Los Angeles. The Riverside County Medical Society will hear a program given by lecturers from the University of Southern California in the Mission Inn at Riverside, January 25-26. The Stanford University School of Medicine is assisting in formulating for the Sacramento Society for Medical Improvement a program which will be held February 8-9. The last institute will be held March 8-9 in Santa Rosa with the assistance of the University of California School of Medicine. Any doctor of medicine in California is eligible to attend these institutes. There is a registration fee of $5.

CONNECTICUT

Hartford Fall Lectures.—The program committee of the Hartford Medical Society has planned a series of five fall lectures to be presented in the Hunt Memorial Building in Hartford at 8:30 p. m. Dr. Hayes Martin, New York, spoke October 2 on "Diagnosis and Treatment of Mouth Cancer," and on October 16 Dr. Shaler A. Richardson, Jacksonville, Fla., on "Ocular Manifestations of General Diseases and the Evaluation of Cortisone and ACTH Therapy." Remaining lectures are as follows:

Nov. 20, Cyrus C. Sturgis, Ann Arbor, Mich., Blood Dyscrasias.
Dec. 4, Alexander Brunschwig, Experiences with Radical Surgery in Advanced Cancer of the Female Genital Tract.
Dec. 18, William Dock, Brooklyn, N. Y., Causes and Control of Arteriosclerosis.

Symposium on Nutrition.—The Yale University Nutrition Laboratory in cooperation with the Yale University Department of Public Health and the Connecticut State Department of Health will present a symposium on "Nutrition Fronts in Public Health" November 10 in the Brady Memorial Laboratory of the university in New Haven. Speakers from outside the state who will present papers include:

Icie G. Macy-Hoobler, Ph.D., Detroit, Diet and Maternal Health.
Benjamin H. Ershoff, Ph.D., Los Angeles, Factors Conditioning Development of Malnutrition.
Clive M. McCay, Ph.D., Ithaca, N. Y., Nutrition as a Factor in Aging.
Ernst Simonson, Minneapolis, Influence of Nutrition on Work Performance.
Howard A. Schneider, Ph.D., New York, Nutrition and Resistance—Susceptibility to Infection.
Leo T. Samuels, Ph.D., Salt Lake City, Nutritional Factors and Hormones in Stress Reactions.

ILLINOIS

Another Cancer Clinic.—The twenty-fourth cancer clinic of the Illinois Department of Public Health began operation at Doctors' Hospital in Carbondale September 7. It will meet every first and third Thursday each month at 1:00 p. m. As in the other clinics, it will offer consultation services in the diagnosis and treatment of cancer to physicians. Patients suspected of having cancer may be referred by their family physicians to one of these clinics. During 1949 a total of 5,387 Illinois citizens entered the clinics for examination, among whom 1,623 cancers were discovered. There were also 8,523 follow-up examinations on patients during 1949.

Chicago

First Baer Lecture.—On October 20 the Chicago Gynecological Society heard the first Joseph L. Baer Lecture, established by a fund created to honor Dr. Baer, a former president. Dr. Ludwig A. Emge, San Francisco, spoke on "Reflections on the Hypothesis of an Estrogen-Cancer Relation."

Clinical Training in Allergy.—Two fellowships are available for 1951 training in allergy at the Northwestern University Medical School. Fellowships are for one year and include clinical and investigative experience. Preference is given to those who have or intend to complete their board requirements in internal medicine or pediatrics. The stipend is $2,400 to $3,600. Information may be obtained from Dr. Samuel M. Feinberg, Northwestern University Medical School, Chicago 11.

Fellowship in Honor of Dr. Karl Meyer.—The Dr. Jerome D. Solomon Research Foundation established a fellowship in honor of Dr. Karl A. Meyer, medical superintendent of Cook County Hospital, September 26. The fellowship is a $1,200 per year research grant, which has been awarded to Dr. Hyman Lans, a resident surgeon at Cook County Hospital. The fellowship was announced at a dinner for Dr. Meyer on his sixty-fourth birthday.

KENTUCKY

Report on Biopsy Program.—From Aug. 15, 1949 through June 22, 1950, 797 specimens were submitted irom 94 counties to cooperating pathologists of the Kentucky Society of Pathologists in the state tissue biopsy program. There were 424 malignant and 373 nonmalignant specimens. The program was established during August 1949 as an additional service to cancer control in Kentucky, sponsored by the Kentucky Society of Pathologists. It has filled a need of general practitioners in rural areas.

Honored at State Meeting.—At the public meeting of the annual convention of the Kentucky State Medical Association in Louisville, September 26-28, awards were presented by Dr. Bruce Underwood, secretary and general manager, to the following members: Dr. Charles A. Vance, Lexington, Distinguished Service Medal; Dr. E. Carroll Yates, Lexington, the E. M. Howard Award for Meritorious Service, and Dr. Wiley H. Wheeler, Olive Hill, the J. Watts Stovall Award for the outstanding General Practitioner of the year.

MICHIGAN

Personal.—Dr. James T. Cheng, former professor at Shanghai University, will teach at Wayne University College of Medicine during the current year under the terms of a fellowship fund provided by the Detroit Tuberculosis Sanatorium. Dr. Cheng received his M.D. degree from Northwestern University Medical School, Chicago, and served his internship at Grace Hospital.

Memorial to Dr. Gruber.—A service in honor of Dr. Thomas K. Gruber, late superintendent of Wayne County General Hospital and Infirmary, was recently held at Eloise in the T. K. Gruber Memorial Auditorium. A bronze plaque, a tribute from employees of the institution, was unveiled in the hospital.

Hearing Conservation Program.—As an aid in conserving the hearing of Michigan school children and to help those handicapped by poor hearing, the Michigan Department of Health is providing for the eighth year hearing consultation service to Michigan communities. Requests for the service have been received from 30 counties this year. Over 450,000 children have been given group audiometer tests since the Michigan Hearing Conservation Program began in January 1943. Of these, 3 per cent showed some hearing loss. Of the children who received medical treatment, more than 77 per cent improved, 50 per cent of them to normal hearing. Requests for hearing consultation service are made by the schools through the local health departments.

MISSOURI

Barnard and Terry Lectures.—The annual Barnard Lecture of the St. Louis Medical Society will be delivered by Dr. R. Lee Clark Jr. of the M. D. Anderson Hospital for Cancer Research, Houston, Texas, November 21 on "What Can We Do for Cancer Today?" The Robert J. Terry Lecture of the William T. Coughlin Fund will be presented December 5.

Seminars on Cardiac Problems.—Saint Louis University School of Medicine is conducting a series of seminars in various parts of Missouri to apprise physicians of some of the cardiac problems. The program is financed by a grant from the U. S. Health Service to the state of Missouri and matched by the university. The meetings have been arranged by the Missouri State Medical Association and will be held in the councilor districts of the association. At Sedalia on November 30 Dr. Charles J. Kromer, Jefferson Barracks, will speak on "Pathogenesis of Congestive Failure"; Dr. Burch V. Raley, St. Louis, "Physical Findings and Differential Diagnosis of Congestive Failure," and Dr. James P. Murphy, St. Louis, "Treatment of Congestive Failure." On November 2 the symposium will be devoted to congenital heart disease. Dr. Vincente Moraguez, St. Louis, will discuss "Pathologic Anatomy of Congenital Heart Disease"; Dr. James G. Janney Jr., St. Louis, "Inoperable Congenital Heart Lesions"; Dr. Chester P. Lynxwiler, St. Louis, "Operative Congenital Heart Lesions," and Dr. Sidney Smith, "Surgical Aspects of Congenital Heart Disease." The final meeting scheduled thus far will be at Wentzville December 7 on arteriosclerotic heart disease. Dr. James B. Stubbs, St. Louis, will talk on "Angina Pectoris"; Dr. R. Emmett Kelly, St. Louis, "Arteriosclerosis Obliterans," and Dr. David B. Flavan, St. Louis, "Coronary Heart Disease." Additional symposiums will be announced.

NEW MEXICO

Clinical Society Program.—The New Mexico Clinical Society on October 17 heard Dr. Marshall H. Brucer of the Oakridge Institute for Nuclear Studies, Oakridge, Tenn., speak on "Application of Radio Isotopes to Medical Diagnosis and Treatment" and Dr. George A. Body, also of the institute, on "Technics of Autoradiography." A number of other lectures will be made available to the members of the society through the cooperation of the Veterans Administration Hospital in Albuquerque during the fall and winter months.

NEW YORK

Personal.—Dr. Charles Buckman has been appointed assistant commissioner of the New York State Department of Mental Hygiene. He will be in charge of the department's New York City office.

Postgraduate Instruction.—Postgraduate lectures have been arranged for the following county medical societies: At the Columbia County Medical Society meeting at the Columbia Memorial Hospital in Hudson October 31 at 8:30 p. m., Dr. Frederic D. Zeman, New York, will speak on "Prevention of Disease in Old Age." Dr. Milton G. Potter, Buffalo, chairman of the Committee on Problems of Alcoholism of the state medical society, will address the Steuben County Medical Society November 9 at the Hornel Country Club in Hornell at 8:30 p. m. His subject will be "Alcoholism."

New York City

Special Car to Aid Handicapped Patients.—A specially made automobile which will be of help in the rehabilitation of disabled patients was presented to the Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center October 3 by an anonymous donor. The car, built with removable seats and doors opening from the rear, is suited to persons using leg braces and crutches. The availability of the car means that each patient will be able to participate in several outings a week in the entertainment program. The car will be used also to transport patients within the city in order that certain skills of everyday living can be practiced.

New Speech Clinic.—A Speech Clinic for Children was opened at New York Medical College, Flower and Fifth Avenue Hospitals in September with a staff consisting of a diagnostician to evaluate speech and language difficulties and a therapist to help children overcome these difficulties. The clinic will be open each Monday and Thursday from 9:30 to 12:30. Children admitted will attend one session weekly for as long as necessary, and parents will conduct drill sessions at home under the direction of the clinic to supplement the therapy program. A grant of $5,000 to aid in establishing the clinic was made to the institution by the Lena Invalid Aid Society through the Association for the Help of Retarded Children.

Rheumatic Fever Study.—The Department of Preventive Medicine of New York University College of Medicine has received a grant of $10,000 from the Association for the Aid of Crippled Children to continue its study of administrative practices necessary for case finding and follow-up of children with rheumatic fever and heart disease in the Lower East Side of New York. The purpose of this project is to develop in one health center district a rheumatic fever and heart disease program which can be adopted by the New York City Health Department and be extended to a citywide program. The project has been conducted for the past three and a half years on grants from the National Institutes of Health and the New York Heart Association, with the cooperation of the New York City Department of Health and the Board of Education. Further support, to the extent of $20,000 to complete at least one more year of study, has been promised by the New York Heart Association. Dr. Henry E. Meleney, professor of preventive medicine, is the responsible investigator. Dr. Elvira de Liee-Burke was project director for the first two and a half years.

NORTH CAROLINA

Annual Symposium.—The Raleigh Academy of Medicine will hold its second annual Medical Symposium at the Sir Walter Hotel in Raleigh November 17. The following specialists will speak on cardiovascular disease: Dr. Claude S. Beck and Dr. A. Carleton Ernstene, Cleveland; Dr. Reno R. Porter, Richmond, Va., and Dr. Reginald Smithwick, Boston. All physicians are invited to attend.

Personals.—Dr. Paul F. Whitaker, Kinston, has been elected to fill the unexpired term of the late Dr. Paul G. Parker on the North Carolina Board of Medical Examiners.——Dr. G. Westbrook Murphy, Asheville, who has just completed a year as president of the Medical Society of the State of North Carolina, has been elected to the editorial board of the society's *North Carolina Medical Journal* to fill the vacancy made by Dr. Paul H. Ringer, who has moved to New York.

OREGON

State Medical Election.—At the recent session of the Oregon State Medical Society in Gearhart the following officers were elected for 1950-1951: Dr. William J. Weese, Ontario, president; Dr. Blair Holcomb, Portland, president-elect; Dr. Robert F. Miller, Portland, secretary, and Dr. Robert W. Kullberg, Portland, treasurer. Dr. Edward H. McLean, Oregon City, and Dr. Raymond M. McKeown, Coos Bay, were elected delegates to the American Medical Association through 1951 and 1952, respectively, with Dr. William W. Baum, Salem, and Dr. James E. Buckley, Portland, as alternates.

PENNSYLVANIA

Society News.—The Reading Eye, Ear, Nose and Throat Society met September 12 in Reading with the Berk County Medical Society. A symposium on bacterial allergy was presented by Drs. Louis Tuft, Philadelphia; Russell C. Grove, New York; John E. Gregory, Philadelphia, and Archibald R. Judd, Hamburg.

Philadelphia

Course in ACTH and Cortisone.—The Division of Endocrine and Cancer Research of Jefferson Medical College of Philadelphia will hold a two day course on pituitary adrenocorticotropic hormone (ACTH) and cortisone on November 13-14 at the college. The course, which will start at 9:00 a. m., is open to all physicians free of charge. Application for enrolment should be sent to Dr. Karl E. Paschkis, Director of the Division of Endocrine and Cancer Research, Jefferson Medical College, Philadelphia 7.

SOUTH CAROLINA

Annual Founders' Day Program.—The Founders' Day Program of the Medical College of the State of North Carolina, Charleston, will be held November 2 in the Baruch Auditorium of the college, sponsored by the Medical College Alumni Association and the South Carolina Academy of General Practice. Out-of-state speakers on the program, beginning at 9:30 a. m., include:

John M. Nokes, Charlottesville, Va., Errors and Omissions in Obstetrics.
Donald A. Covalt, New York, Trauma, Disability and Chronic Disease.
Murray M. Copeland, Washington, D. C., Diagnosis and Treatment of Premalignant Lesions of the Breast.
Alexis F. Hartmann, St. Louis, Problems of Fluid Therapy.
Ray O. Noojin, Birmingham, Ala., Treatment of Common Skin Infections.

Dr. Kenneth M. Lynch, president and professor of pathology at the medical college, will conduct a pathology conference at 4:30 p. m. The speaker at the banquet will be Dr. James H. Means, Boston, whose subject will be "Physician, Know Thyself."

SOUTH DAKOTA

Personals.—Dr. Charles D. Hendley, formerly assistant professor of physiology at Ohio State University School of Medicine, Columbus, has been appointed associate professor of pharmacology at the University of South Dakota School of Medical Sciences, Vermillion, effective October 1.——Dr. George T. Jordan of Vermillion received a life fellowship in the American Academy of Ophthalmology and Otolaryngology at the annual meeting in October in recognition of his 30 years of uninterrupted service in the academy.

Procurement and Assignment Committee.—The South Dakota State Medical Association has appointed a Procurement and Assignment Committee to assist the Defense Department in its selection of physicians for duty with the Armed Services. Assigned to the committee were Dr. Paul V. McCarthy, Aberdeen; Dr. Guy E. Van Demark, Sioux Falls; Dr. Carlyle Hare, Spearfish, and Dr. Louis J. Pankow, Sioux Falls, president of the association. John C. Foster, executive secretary of the association, will act as secretary to the committee.

TEXAS

Appoint Dean of Postgraduate Medical School.—Dr. Jack R. Ewalt, administrator of hospitals and professor of neuropsychiatry at the University of Texas Medical Branch, Galveston, has been appointed dean of the University of Texas Postgraduate School of Medicine. Dr. Ewalt is planning the organization of residency training programs in approved hospitals in Texas in coordination with the facilities available at Southwestern Medical College, Dallas, the M. D. Anderson Hospital for Cancer Research, Houston, and the Medical Branch at Galveston. Dr. Truman G. Blocker Jr., professor of plastic and maxillofacial surgery at the medical branch, has been appointed administrator of Medical Branch Hospitals, Galveston, succeeding Dr. Ewalt, and Mr. E. N. Cappleman, business manager of the Medical Branch, has been named assistant administrator, in addition to his other responsibilities.

UTAH

Annual Regional Meeting.—The annual regional meeting of the American College of Physicians for Utah will be held at the Salt Lake General Hospital, Salt Lake City, November 11. Dr. Fuller B. Bailey will be in charge. Invited speakers, all of Salt Lake City, include:

Louis P. Gebhardt Jr., Progress in Poliomyelitis.
John F. Waldo, New Adjuncts in Penicillin Therapy.
Blair V. Jager, Serum Proteins in Rheumatic Fever.
Thomas F. Dougherty, Ph.D., Experimental Observations on Cortisone.
Don H. Nelson, Naturally Occurring Adrenal Steroids.
George E. Cartwright, Endocrine Functions of the Spleen.
Frank H. Tyler, Hereditary Ataxias.
Mark Nickerson, Ph.D., Survey of Adrenergic Blocking Agents.
Hans H. Hecht, Mechanism of the So-Called WPW Syndrome.

A reception and informal dinner will be held at the Alta Club. The speaker will be Dr. Walter L. Palmer, Chicago, chairman of the Board of Governors and regent of the college.

WEST VIRGINIA

Society News.—Mr. Paul Lowther of Clarksburg was elected president of the West Virginia Tuberculosis and Health Association at the annual meeting held in Bluefield in September. Dr. Karl J. Myers of Philippi was named vice president, and Dr. Harold H. Howell of Madison, secretary.

Meeting on Nutrition.—A joint dinner meeting of the West Virginia State Nutrition Committee and the Barbour-Randolph-Tucker Medical Society will be held in Elkins November 16. Dr. Norman H. Jolliffe, director Bureau of Nutrition, department of health, New York, will speak on "Lessons Learned from Recent Nutrition Surveys in Newfoundland and New York."

Air Pollution Study.—The State Department of Health with the aid of the Kettering Laboratories of Applied Physiology of Cincinnati will make a technical survey of Kanawha Valley's air pollution problem. Industry in the valley has agreed to contribute $27,000 for the study covering the period to July 1951. The survey will include analysis of plant emissions to the air as well as a study of contaminants in the atmosphere in the surrounding area.

HAWAII

Plantation Physicians Meeting.—The annual meeting of the Territorial Association of Plantation Physicians will be held November 9-12 in Lihue, Kauai, under the presidency of Dr. Samuel R. Wallis of that city. On Thursday there will be a panel discussion on anesthesia under the chairmanship of Dr. Carl Johnson and on Saturday a panel on industrial accidents with Mr. William Douglas of the Territorial Board of Workmen's Compensation as chairman. The association is made up of physicians in the Hawaiian Sugar Planters' Association.

GENERAL

Speech and Hearing Association Anniversary.—The Silver Anniversary convention of the American Speech and Hearing Association will be held November 9-11 at the Deshler-Wallick Hotel, Columbus, Ohio. Speech and hearing therapy, audiology, stuttering, experimental phonetics and speech correction in the public schools will be subjects of panel discussions.

Society Election.—Dr. Charles F. Wilinsky, director, Beth Israel Hospital, Boston, was installed as president of the American Hospital Association at the annual convention in Atlantic City in September. Dr. Anthony J. J. Rourke, superintendent of Stanford University Hospitals, San Francisco, was chosen president-elect. Dr. Arthur C. Bachmeyer, director, University of Chicago Clinics, was reelected association treasurer.

College of Physicians.—The Midwest Regional Meeting of the American College of Physicians will be held at the Memorial Union Theater on the campus of the University of Wisconsin in Madison November 18. Registration will begin at 8:00 a. m. Speakers presenting papers by invitation include:

Armand J. Quick, Milwaukee, Clot Retraction, a Basic Factor in Thrombosis.
Kenneth P. Mathews, Ann Arbor, Mich., Clinical Usage of Antihistaminic Drugs.
Austin M. Brues, Chicago, Nature, Prophylaxis and Therapy of Radiation Sickness.
James A. Means III, Milwaukee, Periarteritis Nodosa.
Van R. Potter, Ph.D., Madison, Wis., Enzyme Studies Directed Toward Cancer Chemotherapy.

This meeting is open to all physicians.

Annual New England Meeting.—The annual meeting of the New England Obstetrical and Gynecological Society will be held in Boston November 1 with headquarters at the Hotel Somerset. Operative and dry clinics will run concurrently at Boston Lying-in, Massachusetts General and Massachusetts Memorial hospitals. The afternoon program will be held at the hotel. Speakers will be:

Eugene H. Drake, Portland, Maine, Heart Disease in Pregnancy.
C. Langdon Parsons, Boston, Carcinoma of the Cervix in General Practice.
Norman F. Miller, Ann Arbor, Mich., Postpartum Care.

Residency Training in Obstetrics and Gynecology.—On account of unsettled conditions associated with the Korean crisis and remobilization of the Armed Forces, the American Board of Obstetrics and Gynecology has voted to postpone indefinitely published plans for equal balancing of minimal residency training periods in obstetrics and in gynecology. Therefore, the paragraph in the current Bulletin of this board, on page 7, reading "Effective Jan. 1, 1954, training in each branch must balance to provide a minimum of 18 months each in obstetrics and in gynecology toward the required total of three years" is deleted from present requirements. For further details, interested hospital administrators or candidates should refer to the Bulletin obtainable on application at the Office of the Board, 1015 Highland Building, Pittsburgh 6.

Predoctoral Fellowships.—The Life Insurance Medical Research Fund invites faculty members to nominate candidates for 1951-1952 predoctoral fellowships for research in the medical sciences. These fellowships are open to those who will have completed one year or more of work in a medical or graduate school and are in a position to devote at least three quarters of their time to research. Preference is given to those who wish to work on fundamental problems in cardiovascular function. The usual stipend is at the rate of $1,600 to $2,000 per annum. Candidates themselves should not apply. They should be nominated by investigators who are willing to sponsor them on the basis of personal knowledge of the candidates. The closing date for 1951 nominations is January 1, 1951. Information may be obtained from the Scientific Director of the Fund at 2 East 103d Street, New York 29.

Inter-American Congress of Surgery.—The Seventh Inter-American Congress of Surgery will be held in Lima, November 19-23 under the auspices of the government of Peru, with the Peruvian Academy of Surgery as host. Dr. Oscar Guzmán del Villar is president and Dr. Jorge de Romana is secretary general of the Peruvian Academy; they will serve in the same official capacity for the seventh congress, which is sponsored by the Association of Inter-American Congresses. Dr. Harold L. Thompson, Los Angeles, will speak on "Recto-sigmoid Cancer." Dr. A. Ray Wiley of Tulsa, Okla., will speak on "Burn Sequelae and Treatment"; Dr. Herman E. Pearse Jr., of Rochester, N. Y., will report on an investigation on burns which is sponsored by the Atomic Energy Commission. The speakers from the host country on the three main themes will be Dr. Aurelio Diaz Ufano, "Recto-sigmoid Cancer"; Jose Velez Diez Canseco, "Sequelae of Burns and Treatment," and Prof. Ricardo Pazos Varela, "Traumatisms of the Urethra."

Annual Meeting of Cancer Association.—The annual meeting of the Public Health Cancer Association of America will be held in St. Louis October 30 under the presidency of Dr. Paul R. Gerhardt, Albany, N. Y. Speakers will be:

Frank L. Rector, Ann Arbor, Mich., What Is a Practical Cancer Detection Program?
Walter E. Batchelder, Chicago, Cancer Control Program of American College of Surgeons.
Johannes Clemmesen, Copenhagen, Denmark, Cancer Register as a Tool in Epidemiological Research.
Austin V. Deibert, Bethesda, Md., Commentary on the National Cancer Control Program in the United States.
Ralph Warwick, Toronto, Canada, Commentary on the Canadian National Cancer Control Program.
Earle G. Brown, Mineola, L. I., N. Y., A Cancer Control Program at the County Level.
Clarence L. Scamman, Boston, Preliminary Report of Findings in "Cancer Suspect" Survey Covering 530,000 Cases.
R. Lee Clark, Houston, Texas, Basic Clinical and Sociological Research in a Cancer Control Program.
Paul C. Aebersold, Ph.D., Oak Ridge, Tenn., Radioisotopes in Cancer Research and Control.
Lester Breslow, San Francisco, Environmental Factors in Pulmonary Cancer.
Paul R. Gerhardt, Albany, N. Y., Use of Cancer Morbidity Reports in New York State's Cancer Control Program.

Pathology Regional Meetings.—The College of American Pathologists has scheduled four section meetings. The Northeastern region of the college and the New England Pathological Society will meet November 4 at the Hartford Club in Hartford, Conn. Speakers outside the section include: Otto Saphir, Chicago, "Slide Seminar." The Northwestern Regional Meeting with the Pacific Northwest and the Washington state societies of pathologists will meet at the Empress Hotel in Victoria, British Columbia November 10-11. Visiting speakers will be Dr. Hugh G. Grady, Washington, D. C., who will speak on "Squamous Carcinoma in Situ of the Cervix," and Granville A. Bennett, Chicago, who will conduct a seminar on "Lesions of Bone." The banquet speaker will be Dr. M. G. Westmoreland, executive secretary of the college, Chicago. The Southeastern and South Central regions will meet with the Section on Pathology of the Southern Medical Association November 15-16 at Kiel Municipal Auditorium, St. Louis. Dr. James W. Kernohan, Rochester, Minn., will speak on "Spinal Cord Tumors," and C. Howard Hatcher, Chicago, on "Diagnosis of Sarcoma of Bone." The fourth regional meeting is scheduled in Chicago on October 16 in conjunction with the annual meeting of the Illinois Society of Pathologists.

Meeting of Military Surgeons.—The Association of Military Surgeons of the United States will hold its annual convention November 9-11 at the Hotel Statler in New York, under the presidency of Col. William H. Triplett, Baltimore. The speakers, include:

Norvin C. Kiefer, Washington, D. C., Civil Defense Planning.
Louis H. Bauer, New York, The World Medical Association.
Howard A. Rusk, New York, Total Rehabilitation in Total Mobilization.
Alexander O. Gettler, Ph.D., Brooklyn, N. Y., Chemistry in Detection of Crime.
Lloyd R. Newhouser, Capt. MC USN, Practical Considerations of a Blood Program in a National Emergency.
James C. Sargent, Milwaukee, Doctors and Defense.
Irving S. Wright, New York, Use of Anticoagulants in Military Medicine.
Chester S. Keefer, Boston, Selection of Antibiotics for Medical and Surgical Patients.
William D. Stroud, Philadelphia, Optimism in Treatment and Prognosis of Cardiovascular Disease.
Perrin H. Long, Baltimore, Disease and Command Responsibility.
Leslie N. Gay, Baltimore, A Supplementary Report on Dimenhydrinate (Dramamine®).
William F. Maefee, New York, Surgery of World War III.
Paul M. Linebarger, Ph.D., Washington, D. C., An Analysis of the Cold War.
Harold W. Glattly, Col. MC, USA Surgeon, Second Army, Practical Solution to the Medical Reserve Training Program.
Richard L. Meiling, Columbus, Ohio, and Washington, D. C., Reserve Activities of the Medical Services of Department of Defense.
Frank B. Berry, New York, Place of the Professional Consultant in the Reserve.
Mr. John P. Bracken, USNR, Reserve Legislation.

Lasker Award Winners.—The 1950 winners of the Lasker Awards of the American Public Health Association were announced at a press luncheon at the Sherry-Netherland Hotel in New York October 9. The awards were conferred on George W. Beadle, Ph.D., chairman, biology division, California Institute of Technology, Pasadena, "for outstanding and fundamental contributions to the understanding of genetic control of metabolic processes"; Dr. George N. Papanicolaou, professor of clinical anatomy, Cornell University Medical College, New York, "for outstanding contributions to the early diagnosis of cancer through cytological methods," and Dr. Eugene L. Bishop, director of health and safety for the Tennessee Valley Authority, "for original and meritorious accomplishments in Public Health Administration." The group award this year will go to the International Health Division of the Rockefeller Foundation "for outstanding achievement in the control of infectious diseases and the education of health personnel throughout the world." The awards will be presented to the winners at the annual meeting of the American Public Health Association in St. Louis, October 31. Individual winners will receive monetary prizes of $1,000, leather-bound citations hand-illuminated in Middle Ages style, which describe their achievements, and gold statuettes of the Winged Victory of Samothrace. The group winner will receive a silver statuette.

Prevalence of Poliomyelitis.—Reports of cases of poliomyelitis for the periods indicated have been received from the National Office of Vital Statistics, U. S. Public Health Service.

	Week Ended		Total*		5-Year Median, 1945-1949
	Oct. 14, 1950	Oct. 15, 1949	1950	1949	
United States Total	1,598	1,204	23,815	35,000	20,219
New England States:					
Maine	4	8	75	419	37
New Hampshire	..	..	18	177	24
Vermont	2	10	27	118	33
Massachusetts	21	50	375	1,699	202
Rhode Island	1	12	40	140	75
Connecticut	32	19	363	521	124
Middle Atlantic States:					
New York	205	182	3,033	4,762	1,175
New Jersey	44	64	646	1,204	651
Pennsylvania	77	33	1,001	649	600
East North Central States:					
Ohio	125	47	1,238	1,546	999
Indiana	54	43	392	957	301
Illinois	100	79	1,382	2,573	944
Michigan	115	81	1,702	2,422	765
Wisconsin	65	26	630	890	460
West North Central States:					
Minnesota	28	23	280	1,637	1,018
Iowa	57	37	1,041	993	466
Missouri	28	26	294	1,191	276
North Dakota	2	7	29	431	110
South Dakota	3	10	103	311	311
Nebraska	22	21	328	532	502
Kansas	23	24	375	619	268
South Atlantic States:					
Delaware	2	..	33	26	26
Maryland	70	15	517	190	88
District of Columbia	10	7	161	88	88
Virginia	51	11	266	276	276
West Virginia	12	5	291	307	102
North Carolina	28	7	589	110	103
South Carolina	8	3	376	84	84
Georgia	23	8	308	174	118
Florida	20	5	268	196	196
East South Central States:					
Kentucky	40	21	509	547	96
Tennessee	25	12	453	458	324
Alabama	9	8	234	202	177
Mississippi	18	6	294	291	138
West South Central States:					
Arkansas	6	9	257	889	138
Louisiana	9	4	285	196	127
Oklahoma	9	29	435	1,155	325
Texas	70	36	2,103	1,940	887
Mountain States:					
Montana	2	4	29	79	58
Idaho	18	16	98	389	71
Wyoming	2	..	33	100	68
Colorado	15	31	138	580	115
New Mexico	7	16	81	177	67
Arizona	13	..	304	130	110
Utah	4	19	49	199	112
Nevada	..	2	4	15	4
Pacific States:					
Washington	24	21	388	461	241
Oregon	29	33	302	230	124
California	66	74	1,201	1,700	1,700

* Beginning with the twelfth week of each year.

LATIN AMERICA

Congress in Plastic Surgery.—The Fifth Congress of the Latin-American Society of Plastic Surgery is to be held in Lima, Peru, from November 5-10. Fellows of the American College of Surgeons are invited to participate through their attendance or through presentation of scientific papers in the specialty or allied branches. Address communications to: José Vélez Diez Canseco, president, Sociedad Latinoamericana de Cirugía Plastica, Washington 1218, Lima, Peru.

Puerto Rico Regional Meeting.—The annual regional meeting of the American College of Physicians for Puerto Rico will be held in the Puerto Rico Medical Association Building Santurce, San Juan, on November 5. The program includes Dr. Howard E. Hall, Baltimore, who will speak, by invitation, on "Treatment of Leptospirosis." The formal dinner to be held at the Condado Beach Hotel. Brief addresses will be presented by Dr. Rafael Rodriguez-Molina, Dr. Donald S. Martin, dean of the University of Puerto Rico Medical School, San Juan, and Dr. Maurice C. Pincoffs, Baltimore.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, June 26-28. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ARIZONA: October 17-19. Phoenix. Sec., Dr. J. H. Patterson, 316 W. McDowell Road, Phoenix.

ARKANSAS: * Little Rock, Nov. 9-10. Sec., Dr. Joe Verser, Harrisburg. Homeopathic: Nov. Sec., Dr. C. S. Bungart, 105 N. 14th St., Ft. Smith. Eclectic: Nov. 9. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Examination Written.* Sacramento, Oct. 16-19. *Examination, Oral and Clinical for Foreign Medical School Graduates,* San Francisco, Nov. 12. *Reciprocity, Oral Examination,* San Francisco, Nov. 11. Sec., Dr. Frederick N. Scatena, 1020 N Street, Sacramento 14.

COLORADO: * Denver, Jan. 3-5, 1951. Exec. Sec., Mrs. B. M. Hudgens, 831 Republic Bldg., Denver.

CONNECTICUT: * Hartford, Nov. 14-15. Sec., Dr. Creighton Barker, 160 St. Ronan St., New Haven. Homeopathic: Derby, Nov. 14-15. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

DELAWARE: Dover, Jan. 9-11. *Reciprocity.* Jan. 18, 1951. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

FLORIDA: * Jacksonville, Nov. 26-28. Sec., Dr. Homer Pearson, 701 Dupont Bldg., Miami.

HAWAII: Honolulu, Jan. 8-11, 1951. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

IDAHO: Boise, Jan. 8, 1951. Sec., Mr. Armand L. Bird, 305 Sun Bldg., Boise.

INDIANA: Indianapolis, June 1951. Exec. Sec., Miss Ruth V. Kirk, 1138 K. of P. Bldg., Indianapolis 4.

IOWA: *Written.* Des Moines, Dec. 4-6. Acting Director, Dr. Walter L. Bierring, Division of Examination and Licensure, State Department of Health, 1027 Des Moines St., Des Moines.

KANSAS: Topeka, Dec. 13-14. Sec., Dr. O. W. Davidson, 772 New Brotherhood Bldg., Kansas City.

KENTUCKY: *Examination.* Louisville, Dec. 11-13. Sec., Dr. Bruce Underwood, 620 South Third St., Louisville.

LOUISIANA: New Orleans, Dec. 8-10. Sec., Dr. R. B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MAINE: Portland, Nov. 14-15. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: Baltimore, Dec. 12-15 Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore 1. *Homeopathic.* Baltimore, Dec. 12-13. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

MASSACHUSETTS: Boston, Jan. 23-26, 1951. Sec., Dr. Geo. R. Schadt, 37 State House, Boston.

MISSISSIPPI: Jackson, December. Asst. Sect., Dr. R. N. Whitfield, Jackson 113.

NEBRASKA:* June 1951. Director, Mr. Oscar F. Humble, Room 1009, State Capitol Bldg., Lincoln.

NEVADA: Nov. 6. Carson City. Sec., Dr. George H. Ross, 112 Curry Street, Carson City.

NEW HAMPSHIRE: *Examination.* Concord, March 14-15. Sec., Dr. John S. Wheeler, 107 State House, Concord.

NORTH DAKOTA: Grand Forks, Jan. 3-6. Sec., Dr. C. J. Glaspel, Grafton.

OHIO: Columbus, December. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OREGON: * *Examination.* Portland, January 1951. Sec., Mr. Howard I. Bobbit, 608 Failing Bldg., Portland 4.

PENNSYLVANIA: Philadelphia, January 1951. Acting Secretary, Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: *Examination.* Santurce, March 6. Sec., Mr. Luis Cueto Coll, Box 3717, Santurce.

SOUTH CAROLINA: Columbia, Nov. 13-15. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * Jan. 15-16. Sioux Falls, South Dakota. Sec., Dr. C. E. Sherwood, 109 Center St., West, Madison.

TEXAS:* Fort Worth, November 9-11, 1950. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth.

UTAH: Salt Lake City, July 1951. Dir., Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City 1.

VERMONT: Burlington, February 1951. Sec., Dr. F. J. Lawliss, Richford.

VIRGINIA: Richmond, Nov. 30, Dec. 1-2. Sec., Dr. K. D. Graves, 631 First St., S.W., Roanoke.

WASHINGTON: * Seattle, January 1951. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WISCONSIN: * River Falls, Jan. 9-11, 1951. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: *Examination.* Tucson, Dec. 19. Sec., Mr. Francis A. Roy, Room 423, University of Arizona, Tucson.

COLORADO: *Examination.* Denver, Dec. 6-7. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 3.

DISTRICT OF COLUMBIA: Washington, Oct. 23-24. Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington.

FLORIDA: Jacksonville, Nov. 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

NEW MEXICO: *Examination.* Santa Fe, Dec. 10. Sec., Mrs. Marguerite Cantrell, P. O. Box 1522, Santa Fe.

OKLAHOMA: *Examination.* Oklahoma City, March 27. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: *Examination.* Portland, Dec. 2. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

RHODE ISLAND: *Examination.* Providence, Nov. 8. Chief, Division of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Building, Providence.

SOUTH DAKOTA: Vermillion, Dec. 1-2. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

TENNESSEE: *Examination.* Memphis, Dec. 27-28. Sec., Dr. O. W. Hyman, 874 Union Avenue, Memphis.

WASHINGTON: Seattle, January 1951. Sec., Mr. Edward D. Dohm, Department of Licenses, Olympia.

WISCONSIN: *Examination.* Milwaukee, Dec. 2. Sec., Mr. W. H. Barber, Scott and Watson Sts., Ripon.

* Basic Science Certificate required.

Coming Medical Meetings

American Medical Association, Clinical Session, Cleveland, Dec. 5-8. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Dermatology and Syphilology, Chicago, Dec. 9-14. Dr. John E. Rauschkolb, 25 Prospect Ave., Cleveland, Secretary.

American Association of Medical Clinics, Hotel Cleveland, Cleveland, Dec. 4. Dr. Arthur H. Griep, Welborn Clinic, Evansville, Ind., Secretary.

American Psychoanalytic Association, Waldorf-Astoria Hotel, New York, Dec. 7-10. Dr. LeRoy M. A. Maeder, 1910 Rittenhouse Square, Philadelphia 3, Secretary.

American Public Health Association, Hotels Statler and Jefferson, St. Louis, Oct. 30-Nov. 3. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American Society for the Study of Arteriosclerosis, Hotel Knickerbocker, Chicago, Nov. 5-6. Dr. O. J. Pollak, Quincy City Hospital, Quincy 69, Mass., Secretary.

American Society of Anesthesiologists, Houston, Texas, Nov. 7-10. Dr. J. Earl Remlinger Jr., 188 W. Randolph St., Chicago 1, Secretary.

American Society of Plastic and Reconstructive Surgery, Mexico City, Mexico, Nov. 27-29. Dr. Clarence R. Straatsma, 66 E. 79th St., New York City, Secretary.

American Society of Tropical Medicine, Savannah, Ga., Nov. 6-9. Dr. Quentin M. Geiman, 25 Shattuck St., Boston 15, Mass., Secretary.

Association of Military Surgeons of the United States, Hotel Statler, New York, Nov. 9-11. Col. James M. Phalen, Armed Forces Institute of Pathology, Washington 25, D. C., Secretary.

Central Society for Clinical Research, Drake Hotel, Chicago, Nov. 3-4. Dr. Kenneth G. Kohlstaedt, 960 Locke St., Indianapolis 7, Secretary.

Gerontological Society, Inc., Chase Hotel, St. Louis, Nov. 12-13. Dr. Henry S. Sims, 630 W. 168th St., New York 32, Secretary.

International College of Surgeons, United States Chapter, Cleveland Hotel, Cleveland, Oct. 30-Nov. 3. Dr. Arnold S. Jackson, 1516 Lake Shore Drive, Chicago, Executive Secretary.

Interstate Postgraduate Medical Association of North America, Hotel Stevens, Chicago, Nov. 6-9. Dr. Arthur G. Sullivan, 16 N. Carroll St., Madison, Wis., Managing Director.

Postgraduate Medical Assembly of South Texas, Shamrock Hotel, Houston, Texas, Nov. 20-22. Dr. Donald M. Paton, 229 Medical Arts Bldg., Houston, Secretary.

Puerto Rico, Medical Association of, Santurce, Dec. 13-17. Dr. Victor J. Montilla, P. O. Box 3866, Santurce 29, Secretary.

Radiological Society of North America, Palmer House, Chicago, Dec. 10-15. Dr. Donald S. Childs, 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

Southern Medical Association, St. Louis, Nov. 13-16. Mr. C. P. Loranz, 1020 Empire Bldg., Birmingham 3, Ala., Secretary.

Southern Surgical Association, Hollywood Beach Hotel, Hollywood, Fla., Dec. 5-7. Dr. John C. Burch, 2112 West End Ave., Nashville 5, Tenn., Secretary.

Western Surgical Association, Minneapolis, Nov. 30-Dec. 2. Dr. Michael Mason, 154 E. Erie St., Chicago, Secretary.

DEATHS

Kean, Jefferson Randolph ⊕ Brigadier General, U. S. Army, retired, Washington, D. C., died September 4, aged 90, of pneumonia. Dr. Kean was born at Lynchburg, Va., June 27, 1860. He was graduated from the University of Virginia Department of Medicine, Charlottesville, in 1883, and in the following year was appointed assistant surgeon in the Medical Corps of the U. S. Army. He was promoted through various ranks to that of colonel in April 1914, retired June 27, 1924 and under an act of Congress dated June 21, 1930 was promoted to brigadier general. During the Spanish American War he was chief surgeon of the Department of Havana and Pinar del Rio in Cuba under General Fitzhugh Lee and was connected in an administrative capacity with the Army yellow fever board which demonstrated the transmission of yellow fever by a species of mosquitoes, and for this work he was commended by Secretary of War Root. He served as superintendent of the Department of Charities of Cuba and on the staff of Military Governor Leonard Wood in control of all field hospitals. In 1902 Dr. Kean was made assistant to the Surgeon General and placed in charge of the Supply Division of the Surgeon General's Office. In this capacity he instituted the separate system of field medical supply depots. He drafted the law for the reorganization of the medical corps which was enacted April 27, 1908, for the first reserve corps of the U. S. Army and also laws for the organization of sanitary departments in Cuba and Puerto Rico. He returned to Cuba and served as adviser in the department of sanitation for the provisional government of Cuba from 1906 to 1909, when he was again detailed to the Surgeon's Office as chief of the sanitary division. From January 1916 to July 1917 he was director general and organizer of the department of military relief of the American Red Cross, then became chief of the U. S. Ambulance Service with the French Army and subsequently deputy chief surgeon of the American Expeditionary Forces. In 1934 he was appointed by the President as member of the U. S. Commission for construction of the National Expansion Memorial at St. Louis and in 1938 a member of the U. S. Commission to erect a permanent memorial to Thomas Jefferson. He was a delegate from the U. S. Army to the American Medical Association in 1906, 1911, 1912 and 1916 and in 1911 a delegate to the International Sanitary Conference in Paris. Dr. Kean was a past president of the Association of Military Surgeons of the United States, which in 1942 awarded him the Gorgas Medal for his aid in conquering yellow fever in Cuba in 1900. The United States government awarded him the Distinguished Service Medal, the French government the insignia of the Legion of Honor, and Cuba awarded him the grand cross of the Order of Merit of Carlos J. Finlay. Dr. Kean was a member of Phi Beta Kappa and Alpha Omega Alpha. He was editor of the *Military Surgeon* from 1924 until his retirement in October 1934 and was on the editorial board of "The Medical Department of the United States Army in the World War," a history of World War I. Brigadier General Kean was an outstanding representative of American Medicine and of the U. S. Army Medical Corps.

Findlay, Ephraim Kirkpatrick ⊕ Chicago; born in Carleton Place, Ont., Canada, March 6, 1870; Manitoba Medical College, Winnipeg, Man., Canada, 1893; an Associate Fellow of the American Medical Association; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; served during World War I; formerly on the faculty of the University of Illinois College of Medicine; affiliated with the Cook County Hospital, Illinois Eye and Ear Infirmary and St. Luke's Hospital, where he died September 27, aged 80, of myocardial infarction and coronary sclerosis.

Burton, Cosper, Ironton, Ohio; Ohio-Miami Medical College of the University of Cincinnati, 1910; served on the city board of health; an officer in the medical corps of the U. S. Army during World War I; on the staff of Lawrence County General Hospital; died in St. Mary's Hospital, Huntington, W. Va., August 30, aged 68, of heart disease.

Caldwell, Charles Swan, Pittsburgh; Hahnemann Medical College and Hospital of Philadelphia, 1903; specialist certified by the American Board of Radiology; member of the Radiological Society of North America, American Medical Association and the American College of Radiology; served as school physician in Swissvale; for many years on the staff of Shadyside Hospital, where he died September 2, aged 69, of carcinoma of the gallbladder.

Dexter, Harriet Elma Tracy, Bayonne, N. J.; New York Medical College and Hospital for Women, Homeopathic, New York, 1895; member of the American Medical Association; died in Peekskill Hospital, Peekskill, N. Y., August 18, aged 76, of pneumonia.

Fletcher, John Richard Burgoyne ⊕ Providence, R. I.; Tufts College Medical School, Boston, 1928; served during World War II; chief orthopedic consultant for the Providence regional office of the Veterans Administration; died in Veterans Administration Hospital, Framingham, Mass., September 7, aged 52, of bronchopneumonia.

Gee, Willis Wyant, Liverpool, N. Y.; New York Medical College, Flower and Fifth Avenue Hospitals, New York, 1944; member of the American Medical Association; served during World War II; died in St. Joseph's Hospital, Syracuse, August 27, aged 40, of coronary occlusion.

Holke, Theophil J., Freeport, Ill.; Washington University School of Medicine, St. Louis, 1899; member of the American Medical Association; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; affiliated with St. Francis Hospital and Deaconess Hospital, where he died September 9, aged 74, of coronary heart disease.

Irving Francis Raymond ⊕ Syracuse, N. Y.; Syracuse University College of Medicine, 1920; clinical professor of obstetrics at his alma mater; specialist certified by the American Board of Obstetrics and Gynecology; past president of the Central New York Association of Obstetricians and Gynecologists; consulting obstetrician to St. Mary's Maternity Hospital and Children's Home; affiliated with St. Joseph Hospital, General Hospital and Syracuse Memorial Hospital, where he died September 9, aged 54, of cerebral thrombosis.

Johnson, Philip Samuel, Yakima, Wash.; University of Minnesota Medical School, Minneapolis, 1937; member of the American Medical Association; affiliated with St. Elizabeth's Hospital, where he died September 3, aged 49, of injuries received in an automobile accident.

Kendall, William Scott, Cave City, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1919; member of the American Medical Association; past president of the Lawrence County Medical Society; died suddenly in Batesville August 26, aged 62, of heart disease.

La Fontaine, Edgar Walker, Watertown, N. Y.; Trinity Medical College, Toronto, Canada, 1900; member of the American Medical Association; on the staff of Mercy Hospital; died July 18, aged 79, of arteriosclerosis, hypertension and coronary disease.

McCune, Caleb, McKeesport, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1907; member of the American Medical Association; for many years school physician; on the staff of McKeesport Hospital; died August 29, aged 70, of coronary thrombosis.

MacKnight, Richard Patton, Boston; Jefferson Medical College of Philadelphia, 1914; served as director of the division of hospitals of the Massachusetts Department of Public Health; died August 22, aged 61, of chronic myocarditis.

Sandrock, Edgar Poe, Baltimore; Johns Hopkins University School of Medicine, Baltimore, 1907; served during World War I; associated with the Bethlehem Steel Company; on the staffs of Johns Hopkins and Union Memorial hospitals; died August 24, aged 69, of cerebral hemorrhage.

Shy, Milton Porter ⊕ Sedalia, Mo.; Kansas City Medical College, 1900; past president of the Pettis County Medical Society; fellow of the American College of Surgeons; affiliated with the Missouri, Kansas and Texas Railroad Hospital and John H. Bothwell Memorial Hospital, where he died August 31, aged 77, of chronic myocarditis.

Smiley, James H., Indianapolis; State College of Physicians and Surgeons, Indianapolis, 1907; member of the American Medical Association; on the staff of the Methodist Hospital; died August 25, aged 71, of arteriosclerosis.

Smith, George Alpheus, Troy, N. Y.; Albany Medical College, 1901; died August 24, aged 73, of coronary thrombosis.

⊕ Indicates Fellow of the American Medical Association.

FOREIGN LETTERS

LONDON

(From a Regular Correspondent)

Sept. 12, 1950.

Increase in Food Poisoning

A leading evening newspaper in London published a report of Prof. G. S. Wilson's speech at a conference at Olympia on the menace of food poisoning. Professor Wilson pointed out the causes of the increase in this disease in England. He said, "If we all fed at home and ate nothing but roast beef or lamb, there would be very little food poisoning." He went on to say that, while most infectious diseases were declining rapidly, food poisoning was increasing. Before the war there were abont 50 outbreaks of food poisoning a year, but now there were nearly 1,000. He gave two main reasons for this increase: 1. The people were eating far more made-up food than before the war. 2. There was more communal feeding. Made-up foods, he said, were potentially dangerous because of bacterial multiplication which could occur rapidly at a favorable temperature. He emphasized the need for keeping food in refrigerators.

At the same conference, Dr. B. Schlesinger, of the Hospital for Sick Children, said that gastroenteritis was one of the most infectious hazards of infant life. There were, on an average, 3,000 deaths a year from it in Britain. The disease was confined almost entirely to artificially fed children. A mild cold in an adult might easily be passed directly or via the food to an infant, in whom it could produce a severe and often fatal attack of gastroenteritis. He said dried milk foods were the safest, provided that the powder was kept dry and food was prepared freshly. Dr. Schlesinger went on to describe postwar rest centers as "veritable black spots for bringing up infants." The Minister of Health, Mr. Aneurin Bevan, added a plea for scrupulous cleanliness of equipment and clothing by persons at all stages of manufacture and handling of food and drink.

About the same time an article on food poisoning by Dr. E. L. M. Millar and Dr. Margaret Pownall appeared in the *British Medical Journal*. These authors state that during the long hot summer of 1949 seven small outbreaks of food poisoning in Sheffield produced 36, 4, 20, 37, 9, 1 and 1 cases of illness, respectively. A food preparer with a septic hand was found to be associated with each of four outbreaks detailed, but this infection was not the cause of the other outbreaks. The organism of the hand infection was Staphylococcus aureus. On the whole the symptoms were severe, five persons being admitted to hospital and several others being in bed at home for some days with a doctor in attendance. The seven most severely affected persons had all consumed the food about 24 hours after its purchase. There was diarrhea or vomiting or both in every case. Vomiting did not occur in only five cases, and in these the illness began five to 22 hours after the food had been eaten. Of the 36 persons affected, five had symptoms beginning within an hour, 21 in one to five hours and nine in five to 10 hours. The worst cases occurred when the period between ingestion of the food and the onset of symptoms was less than two and a half hours. One woman was affected even though she had cooked her meat by making hash. One of the two men who had made galantine (one of the responsible poison meat dishes) had a mild dermatitis of the hands and wrists. The condition had been present since infancy and he had been employed in the trade for over 30 years. His hands and nose were swabbed at the time of investigation. Though an interval of five days had elapsed since he helped to make the galantine, a heavy growth of Staphylococcus aureus was obtained from his hands. Staphylococcus aureus was not isolated from the nose. Staphylococcus aureus was isolated from the nose and hands of one of four other workers who were investigated. The strain, however, proved untypable, and none of these suspects had any contact with the food in question.

Effects of Hypervitaminosis on Fetal Mouse Bones

Dr. Honor B. Fell and Sir Edward Mellanby, of the National Institute for Medical Research of London, have reported their investigations of the effect on the long bones of late mouse fetuses of abnormally high concentrations of vitamin A. (The bones were grown by the watch-glass method.) When pure vitamin A acetate was added to the culture medium in concentrations of 1,000 to 3,000 international units per 100 cc., the matrix of the terminal cartilage softened, shrank and, finally, almost or completely disappeared, although the cartilage cells appeared normal. In the shaft the cartilage was rapidly replaced by marrow tissue, the bone was resorbed, sometimes completely, and the soft tissues surrounding the explant grew as vigorously as in the controls cultivated in a normal medium. The same results were produced by similar concentrations of an alcoholic extract of avoleum, a commercial preparation rich in vitamin A, made from liver. Similar concentrations of vitamin A obtained by the use of plasma from fowls fed on a diet rich in the vitamin had much less drastic effects on the explants.

The fact is established that the effect of high concentrations of vitamin A on developing bone tissue is a direct one and that the growth of soft tissues was not affected. They have not yet established the rate of destruction of the developing cartilage matrix and bone tissue, but the authors suggest that, particularly in the case of cartilage, it is independent of ordinarily understood cell processes and that the intercellular material is directly concerned. Another important link has been established between the mechanism of bone growth, and the now numerous chemical factors known to control it. It is still necessary to determine the relation between the selected effect of vitamin A on bone in tissue culture and its effect on the more mature tissues of intact animals which are fed on diets containing either too much or too little of this substance.

Medical Sympathectomy in Hypertension

Dr. Richard Turner, Physician to the Western General Hospital, Edinburgh, in what he calls a preliminary paper is concerned with the possible use of these drugs in essential hypertension in order to produce effects comparable to those of surgical sympathectomy. He states that no attempt can yet be made to assess the results of treatment. He makes his experiences available to others who may be contemplating trial of these drugs. Sympathectomy, he points out, is an unscientific method of dealing with hypertension. One cannot even foretell whether it will lower the blood pressure at all for a reasonable period. On the other hand, medical sympathectomy is equally unscientific, but it is a gentler procedure. Desirability of reducing the blood pressure, he says, is a separate question with which he does not deal, although he points out that high pressure is probably but one manifestation of the hypertensive syndrome but may not necessarily be the most important and

that, as long as pathogenesis remains known, all treatment must be empirical. The present therapeutic trials which are reported by him are directed to reducing pressure.

Anesthetists first used pentamethonium and hexamethonium compounds to counter the effects of decamethonium compounds. The lowering of blood pressure which the former produced was a troublesome and even dangerous side effect; this action was of particular interest to physicians. Strictly speaking medical sympathectomy does not correctly describe the action of pentamethonium and hexamethonium, which is not confined to one part of the autonomic nervous system, but for practical purposes this is their main effect. After extensive clinical trials the author concludes that the methonium drugs do not yet have any place in the routine management of patients though they may prove useful in the treatment of persistent symptoms related to hypertension. More information is needed as to their precise action, and most fruitful study will be in patients who might otherwise be treated by sympathectomy.

There is no evidence that continuous reduction of blood pressure by drugs which paralyze the autonomic ganglions will prove beneficial in the long run to hypertensive patients. It may well prove harmful to some of them. Even if desirable, it is not easy to achieve with the drugs so far investigated. On the other hand, there is no reason to doubt that more efficacious and more selective preparation will be made in the future, and possibly a study of methonium compounds will throw light on the etiology of hypertension.

In another article, "Pentamethonium in Hypertension," Dr. Stephanie Saville, Dublin, reports the use and clinical trial of pentamethonium bromide by patients at the hypertensive clinic at this hospital. The drug relieved the troublesome symptoms in all five cases; the author thinks that it arrested the progress of the disorder.

Respiratory Studies in Paralytic Poliomyelitis

The article on this subject by R. B. Bourdillon, E. Davies-Jones, F. D. Stott and L. M. Taylor is based on studies made in the 1949 epidemic of poliomyelitis and on laboratory studies at Stoke Mandeville Hospital. The authors state that, while many of the conclusions are tentative, there is much need for improvement in both the design and the use of the breathing machines. The tidal air of a patient in an iron lung can be measured without difficulty with a spirometer of the type commonly used in hospitals for the measurement of basal metabolism. There are, they say, few published measurements of this type in cases of poliomyelitis and few detailed measurements from patients in tank respirators. The authors took numerous measurements of tidal air with a spirometer of patients, of healthy subjects in Both and Drinker respirators and of patients after respirator treatment for poliomyelitis. These measurements show a wide variation from day to day in most cases. The authors consider that in the treatment of poliomyelitis with respiratory involvement there is much need for measurements of vital capacity and tidal air, unless frequent measurements of blood oxygen and carbon dioxide are practicable. Early measurements of vital capacity are suggested for the detection of the first signs of respiratory involvement with a view to resting the muscles concerned by prompt use of a respirator. The tidal air measurements indicate roughly the correct setting of the respirator pressures for avoidance of under or over ventilation. Potential dangers of hyperventilation are discussed, and measurements are given showing the ease with which this is produced in respirators. A test of the use of the prone position in respirators is of importance, especially in mobile cases. They suggest improvement in the Both respirator, particularly the provision for slower speed and a reduction in the angle of slope and in the thickness of the front panel.

SWITZERLAND

(From a Regular Correspondent)

GENEVA, Aug. 30, 1950.

Sixth International Congress of Pediatrics

Professor Fanconi, head of the Zurich Clinic of Pediatrics, helped to organize the Sixth International Congress of Pediatrics. The congress was held on July 24-28, and from July 21 there were postgraduate lectures provided by some of the best known scientists and physicians. The participants of the congress (of whom there were over 2,300) had the opportunity of hearing, among others, Professor Hess (Nobel prize for medicine), Professor De Hevesy (Nobel prize for physics), Professor Wilkins and Professor McCance, well known for his work on renal function. A representative of the Swiss government expressed the good wishes of and welcome from the Swiss people.

Dr. Helmholz (chief consultant, Midcentury White House Conference on Children and Youth, Washington) described his plan for an international pediatrics organization. Professor Debre (Paris) gave a masterly exposition of the uses of streptomycin. Dr. Gomez, professor of pediatrics in Mexico, discussed proteins of animal and vegetable origin.

Six sections held meetings in the different auditoriums of the Swiss "Ecole Polytechnique fédérale." The speeches, which lasted 10 to 20 minutes at the most, dealt with "socialized medicine," the Rhesus factor, diabetes, antibiotics, immunization, embryopathology, tropical diseases, diarrhea and dystrophia, problems of feeding, diseases of the blood, the diagnosis of neurological and psychiatric disturbances by electroencephalography, the problem of child welfare in countries with a high rate of infant mortality, neurosurgery, control of growth, virus diseases, cardiology, vitamin D and endocrinological disturbances.

One of the highlights of the congress was a symposium organized on cortisone and pituitary adrenocorticotropic hormone (ACTH), at which the congress heard Professor Reichstein of Basel, Nobel prize winner, speak with rare competence on the chemical properties of cortisone, in the discovery of which he took an active part; Professor Thorn, of Boston, on the multiple uses of ACTH and cortisone, and Professor MacIntosh, of New York, on the effects of ACTH in the metabolism of water and salt. Other scientists, American, Finnish, Dutch and Danish, discussed different aspects of this sensational new therapeutic agent. Also of importance was the contribution of two Swiss authors, Professor Bickel, director of the University Therapeutic Clinic of Geneva, and his assistant, Dr. Mach, of Geneva, who presented their particularly well documented works, the first on the recent clinical and therapeutic with respect to the adrenal gland and the second on experimental and clinical studies with ACTH.

The second plenary session was given over to the speeches of Professor Moncrieff (London), Rominger (Kiel, Germany), Frontali (Rome) and Dr. Martha Elliot. The last session, on July 28, on penicillin in congenital syphilis, was held jointly with the International Anti-Venereal Disease Society, under the presidency of Professor Burckhardt (Zurich).

The program of speeches and scientific reports was completed by a brilliant scientific exhibit, which is something that the Americans are used to organizing but which was an innovation in Switzerland. More than 300 pediatrists from different countries had prepared over 1,000 exhibits for this exhibition, which Dr. Gasser (Zurich) organized. The American exhibits, notably those of Wilkins, Taussig and McNair were particularly successful; among the Swiss those of Fanconi, Glanzmann, Bamatter and Franceschetti were worthy of note.

Though the speeches and reports were of exceptional quality, it seems fairly certain that those who attended the congress

obtained the clearest ideas and information by visiting the exhibits. It was a complete success and gave many the opportunity of seeing a new means of spreading knowledge of scientific work. An industrial exhibit included the work of some 30 manufacturers of chemical, pharmaceutical and dietetic products.

At the close of the congress a banquet was held at the Kongresshaus. There were several speeches, among which was that of Professor Hurtado, who was elected the new president of the International Society of Pediatrics and who will have the task of organizing the seventh international congress, to be held in 1953 in Havana.

Seminar of Social Pediatrics

The Zurich Congress concerned itself exclusively with scientific questions. There were talks on questions of social pediatrics in Geneva, the seat of most international organizations for helping children. Because of the personal initiative of Dr. Bamatter, the vice president of the Swiss Society of Pediatrics, it was possible to organize, on a much smaller scale, talks on social pediatrics, which emphasized modern aspects of prenatal and neonatal prophylaxis and recent discoveries in alimentary prophylaxis, active immunization and physical and physical safeguarding of the child in present day life. This seminar, which was in the nature of round-table discussions, had great success, owing to the high quality of the reports presented by some of the greatest specialists, including Professors Debre (Paris), Helmholz (Washington), Gesteira (Rio de Janeiro), Franceschetti (Geneva), Ylppö (Helsinki), Craig (Leeds), Van Crefeld (Amsterdam) and Ramos (Madrid).

These two important conferences at Zurich and Geneva, have presented a complete picture of the different aspects of clinical and social pediatrics. Among the numerous receptions to which the members were invited, one may mention particularly those of the manufacturers of food products for children, Nestle and Guigoz, which also gave visitors an opportunity to visit some of the most beautiful parts of Switzerland.

DENMARK

(From a Regular Correspondent)

COPENHAGEN, Sept. 23, 1950.

Hospital Accommodation for the Aged

Professor Meulengracht has drawn attention to the congestion of his department (Medical Department B of the Bispebjerg Hospital) with old persons. In 1922, most of his hospital patients were under the age of 50. In 1941, most of them were over this age. It has been estimated that in 1951 Denmark will have 186,000 persons over the age of 65 and by 1981 this figure will have reached 343,000. In other words, the number of old persons will almost have doubled, whereas at the same time the total population of Denmark will have risen only from about 4,300,000 to about 5,700,000. In the years to come this will be the greatest problem confronting hospitals.

Professor Meulengracht discussed four different aspects of this problem: (1) the growing expectation of life, (2) the growing tendency to send old folk to hospital, (3) the difficulties encountered in discharging them from hospital and (4) the improved opportunities for treatment of certain acute diseases outside a hospital. A century ago, the expectation of life in Denmark was about 43 years. Now it is about 68 years for men and 70 for women. For various reasons there has of late been a tendency to send old persons to a hospital, an attractive alternative to home nursing. Every hospital physician is only too familiar with the problem of how to speed the parting guest. The relations either cannot or will not take the old persons home again. In Professor Meulengracht's hospital 16 patients, whose ages ranged from 66 to 91, were awaiting admission to a home for the aged. At the same time there were 106 such patients in the municipal hospitals of Copenhagen awaiting transfer to homes for the aged.

Professor Meulengracht suggests that homes be built for the aged to relieve the congestion of general hospitals. The municipal authorities of Copenhagen have planned the erection of a new home for the aged with some 500 beds. Here old persons may be nursed and well cared for without the complicated and expensive machinery which is necessary in a hospital for medical cases.

Early Hospital Treatment for Epilepsy

With a population of only 4,000,000, Denmark has some 14,000 epileptics. About 90 per cent are cared for by general practitioners, and some 5 per cent are in various asylums and institutions for the mentally defective. The remaining 5 per cent are treated in the Department for Epileptics of the Filadelfia Colony. Ever since he founded this colony in 1898, Dr. Sell issued an annual report. Following this tradition, Dr. H. P. Stubbe Teglbjærg, who is in charge of the Department for Epileptics in this colony, has made the report for 1948-1949 an occasion to plead for the early hospital treatment of epilepsy. He points out that our knowledge of epilepsy is still imperfect. By the early admission of epileptics to a hospital specializing in this subject, it should be possible to identify the few cases of epilepsy due to brain tumor. Treatment which is merely symptomatic from the outset may in such cases mask the tumor until it has become inoperable. Then there are the cases due to hypoglycemia, allergy or a psychogenic neurosis, all of which may suffer from symptomatic medicinal treatment which hides the true state of affairs. Patients with epilepsy with a history of encephalitis, trauma or psychic shock also need the examination and treatment which only a hospital can give.

In his review of the modern drug treatment of epilepsy, Dr. Stubbe Teglbjærg points out that none of the various antispasmodic drugs is without one or more drawbacks, such as the development of drowsiness, lassitude or irritability. On this account the patient is apt to reduce the dosage or dispense with the drug in question on his own responsibility, with the result that a relapse may occur. It may now be difficult for the patient to achieve freedom from attacks on returning to the original dosage. On leaving the hospital the patient should be taught to follow dosage instructions with the same conscientiousness which is impressed on a diabetic with regard to his dosage of insulin. The epileptic must learn to adapt the dosage of a given antispasmodic drug to his diet and the character and amount of his work.

Rapid Decrease in Tuberculosis Mortality

A recent report on Danish vital statistics for the period 1948-1949, edited by Marie Lindhardt, shows an increasing mortality from heart disease and a rapidly decreasing mortality from tuberculosis. The gains being greater than the losses, the expectation of life at birth has shown a remarkable increase. In the period 1936-1940, this expectation was 63.5 years for men and 65.8 years for women. In the period 1941-1945, the corresponding figures were 65.6 for men and 67.7 for women. In 1948 there were 9,192 deaths from heart disease in Denmark. In 1949, only a year later, the corresponding figure was 10,386. In the same two years the deaths from other diseases of the circulatory system numbered 1,175 and 1,207, respectively.

In 1948 there were 895 deaths from pulmonary tuberculosis in the whole of Denmark. The corresponding figure for 1949 was only 672. Deaths from other forms of tuberculosis in the same two years numbered 139 and 111, respectively. The decline in the pulmonary tuberculosis mortality was most apparent in the towns, with a decline of about 33 per cent, as compared with 25 per cent for rural districts. In 1946 there were 1,086 deaths from pulmonary tuberculosis; there were 26 deaths

from pulmonary tuberculosis per 100,000 inhabitants, whereas the corresponding figure for 1949 was only 16. Denmark's tuberculosis mortality appears to be the lowest in the world.

Award of the Barfred-Pedersen Prize to Mogens Fenger

On August 27, Mogens Fenger, the surgeon, was awarded by his colleagues the Barfred-Pedersen prize, which is given to doctors or other persons who have served the Danish Medical Association well. Fenger's services to the association have been many and great. Perhaps his greatest contribution is the work he has done on committees to provide funds for the widows of doctors and doctors themselves who have suffered misfortune. Pensions for doctors are now within sight, largely because of Fenger's indomitable labors.

BRAZIL

(From a Regular Correspondent)

São Paulo, Sept. 22, 1950.

Therapeutic Abortion in Rubella

Gregg was the first investigator to establish the relation between rubella in the first trimester of pregnancy and the congenital anomalies observed during the 1940 epidemic of this disease in Australia. Numerous Australian, North American and English authors, in articles attempting to prove this close relation, favored interruption of pregnancy. However, after a careful review of the literature Drs. Alvaro Guimarães Filho and Francisco Cerruti, director and assistant of the Escola Paulista de Medicina, respectively, pointed out that there are numerous discrepancies and doubts concerning the manner of conducting the statistical study, either as to the relation between common rubella and the Australian epidemic or as to the possibility of identifying the virus responsible for this epidemic. They pointed out that authors who in the beginning advocated induced abortion today establish rigid rules for the interruption of pregnancy. Drs. Guimarães and Cerruti illustrated their point of view with reports of two pregnant women who contracted rubella in the first trimester of pregnancy and whose babies were born without congenital defects. Finally, on the basis of a study of the recent literature and of their own experience, they concluded that at present the relation between the incidence of rubella in the first trimester of pregnancy and the appearance of malformations in the newborn is not clearly established and that, in general, the systematic interruption of pregnancy in persons attacked by this contagious disease is not justified.

Chaga's Disease in São Paulo

Data on the geographic distribution of triatomid bugs and cases of Chaga's disease in human beings and in animals, in the literature and personally collected, are reported by Dr. J. L. Pedreira de Freitas. Triatomid bugs have been found in 130 (35.3 per cent) of the municipalities of the state of São Paulo; in 72 municipalities (19.5 per cent) triatomid bugs have been found infected by Trypanosoma cruzi. No extensive surveys were carried out in most cases, so that the absence of infected triatomid bugs may not indicate the absence of infection in the localities. Dr. Pedreira de Freitas collected 12,530 triatomid bugs. The incidence of species was as follows: Tritaoma infestans, 11,515 (91.9 per cent); Panstrongylus magistu, 927 (7.4 per cent); Triatoma sordida, 87 (0.7 per cent), and Triatoma osvaldoi, 1. Autochthonous infections by Tryp. cruzi in man have been found in 28 municipalities of the state of São Paulo and in five municipalities naturally infected animals (dogs, cats or opossums) have been reported.

Penicillin Resistance

Dr. Edgard Barbosa Ribas, assistant at the Instituto de Biologia e Pesquisas Tecnologicas of Curitiba, in the south of Brazil, studied the masking, or delayed appearance, of syphilis in cases of mixed gonorrhea and syphilis infection resulting from penicillin therapy in subcurative doses or without post-treatment control. He reviewed the literature and cited the cases of Derzavis and Bond (1946), Frankland (1946), Leifer and Martin (1946), Miller (1946) and Suter (1947). He reported three of his own cases. One concerned a patient with early anterior gonococcic urethritis who was treated with 300,000 units of penicillin (25,000 units every three hours). The results of serologic tests for syphilis were positive 58 days after exposure, but there were no signs or symptoms clinically interpretable. The second patient, who had gonorrhea, had a maculopapular eruption approximately 60 days after exposure. The results of dark field examination for syphilis were positive. The third patient had been given 600,000 units of procaine penicillin. A laboratory diagnosis of syphilis infection was possible about 65 days after exposure. In all cases results of serologic tests for syphilis were negative before or soon after treatment for gonorrhea and were positive when there was no subsequent exposure, up to the number of days cited for each case.

Achalasia of the Pylorus

Drs. Alipio Correa Neto and Arrigo Raia consider achalasia of the pylorus a well defined disease. They review the literature and call attention to the fact that some of the authors that studied this problem, and described a new disease under the name of hypertrophic stenosis of the pylorus, had dealt with cases of achalasia of the pylorus. They describe the symptoms, the diagnosis and clinical course of this disease. They studied its pathologic changes and paid special attention to the disturbances observed in the myenteric plexus; their cells show different degrees of degeneration, and some are completely replaced by fibrous nodes.

Drs. Alipio Correa Neto and Arrigo Raia reported 15 cases; of these, operation was not done in three, partial gastrectomy of the Reichel Polya type was done in one and Finney's piloroplasty in 11. They consider the last the best method of treatment.

Pulmonary Complications Following Use of Curare

The use of curare preparations during anesthesia is considered a causative factor in postoperative pulmonary complications, according to a paper read before the Sociedade de Medicina e Cirurgia de São Paulo by Drs. Jesus Zerbini and Orlando Lodovici. Their observations were carried out in the first Surgical Clinic of the School of Medicine of São Paulo.

Drs. Zerbini and Lodovici think that curare causes depression of the respiratory centers, hypersecretion, gastric regurgitation and fall of the skelectal muscle tonus. Spirograms were taken before and after surgical procedures to demonstrate the respiratory changes.

Since the use of curare has many definite advantages, they proposed the use of prophylactic measures to avoid the pulmonary complications after anesthesia when curare is used.

Parasitic Illness

In a recent article Dr. Orlando Henrique França emphasizes that the study of parasitic illness is important, since they are causative in allergies. Of 100 allergic persons, 56 were infested with parasites. He presents some tables showing how parasitosis occurs, isolated or associated. He refers to the supposed allergizing influence of the Blastocystis hominis, reputed not to be parasitic. He stresses the diagnostic unreliability of the eosinophil count in parasitosis, even when the parasites are worms. He mentions also the infrequent appearance of lymphocytosis and monocytosis in patients with diseases caused by protozoa.

CORRESPONDENCE

BLOOD PROCUREMENT FROM CIVILIANS

To the Editor:—I cannot agree with the inclusion of the first two sentences in the last paragraph of the editorial on blood procurement appearing in the October 14 issue of THE JOURNAL: "After consultation with various advisors, the Committee on Blood Banks concluded that mass typing of the general population is costly and inadvisable for technical reasons, including that of hazards to the patient introduced by dependence on such typing. Previous experiences in mass typing have been disturbing rather than reassuring."

These statements have been interpreted to mean that mass typing of a large portion of the general population of a large target city, rather than that of the nation at large, is inadvisable. If the Committee meant that the mass typing of the general population of a large target city is inadvisable, it is unfortunate, because another competent and experienced medical group, which has carefully considered all factors involved, has, when faced with the responsibility of providing medical care to a relatively enormous number of nonfatal casualities which will result in the case of an atomic bomb attack, concluded that a "walking blood bank" is imperative, because of the casualties which must be anticipated.

The Committee on Blood and Blood Substitutes of the Emergency Medical Services of Chicago Civil Defense Organization, the Executive Committee of the same organization, a Chicago Committee of Clinical Pathologists and the Civil Defense Committee of the Chicago Medical Society, with the approval of the Council of the Chicago Medical Society in August 1950, decided to establish a "walking blood bank" in Chicago. This item of policy was adopted because it was the only realistic way to provide the quantity of blood which may be required in the event of an atomic bomb attack on Chicago. It was concluded that any other policy would result in a situation which would be described as "too little and too late."

In Chicago we must plan to provide 630,000 pints of blood within 48 hours after an atomic bomb attack and another 450,000 pints within six weeks after the attack. The only conceivable practical way that the immediate need of 450,000 pints can be met is by a "walking blood bank." (One half of our hospital blood banks in Chicago would be destroyed by one properly placed bomb.) One must consider that after the bomb explodes there will be no time to type blood. In such an emergency no time should be lost. Even if personnel could be made available, the errors under such conditions would probably be staggering. Furthermore, all available personnel will be required for other urgent activities. Obviously, we should do the typing before the battle, as is done by the Army and Navy, because in the next war there will be more casualties on the home front than on the Army front. There is no justifiable reason whatsoever to wait until after the blast to do anything which can be done better before the blast and which will conserve trained personnel for other uses after the blast.

A few figures will show that it is ridiculous to imply that the establishment of a "walking blood bank" under the conditions which may prevail in Chicago is costly. The cost of establishing such a blood bank in Chicago, with the exercise of economy, is a trifle compared with the number of lives to be saved. The statement "previous experiences in mass typing have been disturbing rather than reassuring" is one which is applicable to the history of every forward step which has been made in medicine, in science or by man. The statement implies that no progress has been made in recent years in the field of blood typing. The 5 to 15 per cent inaccuracy frequently quoted for mass typing came from a long outdated era. No data on this subject prior to 1948 are acceptable as evidence. Furthermore, the observations to date from an experiment under way in Chicago, and started on the recommendation of our Committee on Blood and Blood Substitutes, show that the error with high titer serums and "finger puncture" blood is less than 1 per cent. One cannot expect less error with human beings doing the work.

It is difficult for me, and the other members of our Chicago Committee with whom I have discussed the matter, to believe that the Committee was advised by persons who adequately considered the probable emergency needs for blood in target cities of the size of Chicago in the event of a well executed atomic bomb attack, along with the numerous activities which will be required of trained personnel. I suspect, and should like to believe, that the expression "the general population" refers to the general population of the United States and not to the general population of Chicago and other large cities. The responsible persons in such cities must be allowed—without the confusion of the public engendered by differences in medical opinion—to develop the blood bank method most expedient for the solution of their particular logistic problems. I am pleased to note that the American Association of Blood Banks endorsed this principle at their meeting on October 13.

Since the National Security Resources Board has recently designated the American National Red Cross "to accept the responsibility of coordinating a nationwide civil defense blood program," I could have saved time by not writing this letter. However, I dislike seeing the Chicago Red Cross Chapter burdened with a tremendous responsibility and at the same time handicapped by a statement that will render it more difficult to fulfil their responsibility.

A. C. IVY, M.D.,
First Vice Chief Deputy, Emergency Medical and Public Health Services, Chicago Civil Defense Organization.

Dr. Ivy's letter was referred to Dr. Leonard W. Larson, Chairman, Committee on Blood Banks, American Medical Association, for comment, which follows.—ED.

To the Editor:—Many communities are now trying to plan intensively to make preparations for an adequate blood supply in the event of disaster. It is appropriate, therefore, to explain more fully the meaning of the actions of the Committee on Blood Banks on Aug. 13, 1950 as reported in the last paragraph of the editorial "Blood Procurement."

By the term "mass typing of the general population" the Committee meant the indiscriminate typing of all persons of all ages in the United States and possessions by mass methods. It is necessary to examine the situation which presumably would prevail in the event of an atomic attack. All experts are agreed that the precise conditions cannot be accurately forecast. There is, however, general agreement that, in the central area hit by an atomic bomb, several things would happen. Among these are utter confusion, death, injury and general exodus of still ambulatory persons.

There also appears to be general agreement that in any large center the first need, the first 24 hours following such an attack, would be the absolute necessity for rescue and removal of all injured survivors from the area. During this stage there could manifestly be opportunity only for applying customary first aid technics and possibly plasma infusion. All available facilities and personnel would be fully occupied in removing survivors

to the peripheral treatment areas. In the bombing of large cities, the destruction of large buildings, the complete disorganization of transportation and communication would require these rescue services. There would therefore be little opportunity in the first 24 hours, or even later, for transfusion with whole blood for many victims, although undoubtedly many units of plasma would be employed. Plasma would be administered because it is effective against burns, shock and injuries; it has the further advantage that it may be stockpiled at dispersal points, stocked for long periods of time and may be administered without laboratory procedures.

After this initial period of first aid and the victims have been removed to suitable places for further treatment, the transfusion of whole blood for patients who would require it would become an extremely important matter. The first and immediate need in blood transfusion would be the mobilization of type "O" donors following radio calls for the assembly of all such type "O" donors at stated points for bleeding. A little later in this phase, donors of all types could be used. The exigencies of the situation must determine the degree to which the usual precautions are carried out. If the emergency made cross matching impossible, only type "O" blood should be used.

Thus the principal purpose of advance mass blood typing will be to expedite the mobilization of the type "O" donors. None of these potential donors could be persons under 18 years of age or over 60 years of age; in fact, they would be roughly one third of the population between 18 and 60 years of age. Furthermore, we could expect to find few of these donors remaining in the center of a target area after the blast. The most pressing problem is the development of an adequate stockpile of plasma and proper dispersal. It is desired to have a supply of donors for this purpose available for bleeding through many consecutive months as processing facilities are developed to handle this load.

Civilian defense funds for the purpose of processing of whole blood into plasma and other derivatives have not yet been made available but are expected in the foreseeable future. At that time a schedule of monthly blood requirements for processing into plasma can be established. If a program of advance typing of the population between 18 and 60 years of age should include the giving of a pint of (acceptable) blood at the time of typing, such a program would be most constructive. But this would be quite different from "mass typing of the general population."

In other words, the major objectives to be attained are two: (1) the securing of known reservoirs of type "O" donors and (2) the orderly procurement of blood for processing into plasma as facilities for this processing are developed. It is deemed unnecessary to establish expensive central files of donors, apart from those developed from their donors by blood banks and regional blood centers. Attention is directed to the following action of the Committee on Policy of the National Blood Program of the American Red Cross:

"It is recommended that all blood bank facilities be urged to continue to develop registers of typed donors as part of their regular operations, as is now being done in many independent blood banks and in the Red Cross Regional Centers. Every attempt should be made to confirm the group 'O' donors among the large number of men whose blood was grouped in the Armed Services during the last war. Each donor should be given a card indicating his group and the date and place which this was done."

Advance typing, even for the restricted purposes noted above —for obtaining a reservoir of type "O" donors and for securing blood for plasma—would strain the facilities and personnel now available. It is possible that properly planned mass typing programs could develop the required quantity of typing serums. The pilot study now being conducted in Jackson County, Michigan, will also reveal many budgetary facts and technical data which should be invaluable in the approach to the problem of advance mass typing.

It is evident from (1) the lack of adequate forecasts from physicists and others acquainted with the problem of atomic attack, (2) the wide variation in the estimates of costs, (3) the great differences in opinion as to the possibility of training enough technicians and (4) lack of sufficient general information on the subject of blood substitutes and the uncertain prognostications as to the length of time for which whole blood may be preserved in the future, and other imponderables, that a great deal is yet to be learned in the scientific world about the nature of our potential needs and the possible means and methods for meeting them. Indiscriminate mass typing, especially of persons who are not potential donors, is inadvisable.

LEONARD W. LARSON, M.D.,
Chairman, Committtee on Blood Banks,
American Medical Association.

MEDICAL EDUCATORS IN JAPAN

To the Editor:—THE JOURNAL may be interested in having news from a group of American medical educators who visited Japan this summer to confer with the faculties of Japanese medical schools and advise them on problems of medical education. The majority of the present leaders of medicine in Japan had received their early training in Germany. It is natural, therefore, that contemporary Japanese medical education should be molded on the didactic pattern of Germany. With the occupation of Japan by the Allied Powers it became apparent that the reconstruction of the country on a democratic and economically self-sufficient basis must be accompanied by a strengthening of some parts of the social structure. In particular it was evident that the profession of medicine was ripe for reform in many aspects. Under the stimulus and guidance of Brigadier Gen. Crawford Sams of the Public Health and Welfare Section of the organization of the SCAP much has already been accomplished. The emphasis has properly been placed on reorientating of the medical schools and improvement of their standards. A survey of the 70 odd schools of Japan has been completed. A few schools have been closed because their facilities were manifestly inadequate for the proper training of physicians. A few have been placed on probation, while the better schools have been encouraged to improve their standards and to assume leadership in the promotion of better medical education. National requirements for the admission of students and for licensure have been established, and attention has now focused on improvement of the organization and curriculum of the medical schools.

To assist the Japanese schools in their task, General Sams sought to make available to them the means for direct consultation with American medical educators. He invited the Unitarian Service Committee, which has had wide experience in organizing medical missions to foreign countries, to recruit a group for Japan. The group, of which I was privileged to be chairman was duly organized, reached Tokyo on July 20 and began work. The members of the group were listed in the foreign letter from Japan in THE JOURNAL October 7 (page 483).

The program covered a period of two months. In the first month we conducted an Institute of Medical Education in three of the medical schools of Tokyo, where we conferred with some 250 professors drawn from the 23 medical schools of the eastern half of Japan. The second institute was held in Kyoto and Osaka, with representatives from the 24 schools of Western Japan. Ten sections of clinical and preclinical medicine were represented. The sections met separately in morning and afternoon sessions for demonstration of teaching methods, the discussion of the content of the curriculum and reviews of recent progress in their particular areas of medicine. There were many joint sessions on such topics as the administrative organization of medical schools in the United States. Several clinicopathological conferences were held and were attended by

all sections. We have emphasized throughout the importance of interdepartmental cooperation of bedside and laboratory instruction and of informal student-faculty relations in the conduct of medical education in America. These principles have made a deep impression on our Japanese colleagues, who acknowledge that their departmental lines are much more tightly drawn than are ours. In particular they enjoyed the clinicopathological conferences, which are novel to them as an instructional process.

We all enjoyed the interesting and stimulating experience of these extensive conferences with the leaders of Japanese medicine. We have been warmly welcomed, have been treated with gracious hospitality and have made many friends. The interest shown in what we have tried to tell about the American scene encourages us to believe that American medicine can have an important influence on the progress of medicine in Japan. Little can be accomplished in two months. We feel that we have merely opened the door to what we hope may be a sustained cooperation between the two countries. The medical schools of Japan are struggling under the weight of distressing economic conditions. They need all the interest and encouragement that we can give them. The extent to which the United States and Japan achieve a whole-hearted rapprochement in the years immediately ahead may well be a significant factor in world affairs. In this endeavor medicine can play a significant part.

Dean, C. N. H. Long, M.D.,
Yale University School of Medicine,
New Haven 11, Conn.

PROF. HANS WINTERSTEIN

To the Editor:—I would like to comment on the item in The Journal (letter from Turkey, July 22, 1950) concerning the retirement of Prof. Hans Winterstein. Professor Winterstein, who reached the age of 70 in July 1949, has not retired. He is still the director of our Institute of Physiology at the University of Istanbul and is actively engaged in physiological research as well as in teaching. The issue of the faculty periodical published in his honor contains articles not only by members of the medical staff at Istanbul but by several of his colleagues and former students throughout the world. The facts in the article concerning the academic career of Professor Winterstein require a little modification. Professor Winterstein was appointed professor ordinarius at the University of Rostock, not the University of Breslau, in 1911 and remained there until the acquirement of his post at Breslau in 1927. In 1933, after six years at Breslau, he came to Istanbul as director of the Institute of Physiology. The institute owes its present status to the endless and inexhaustible energy of this amazing man, who we hope will be with us for many years to come.

Meliha Terzioğlu,
Institute of Physiology,
University of Istanbul.

TOBACCO SMOKING AND CANCER

To the Editor:—Probably all persons interested in the subject of cancer will agree with Dr. Austin V. Diebert (The Journal, Sept. 2, 1950, page 64) when he urges that the recent work on association of cigaret smoking and cancer of the lung should not lead us "to close our eyes to the possible or probable existence of other cancerigenic agents in any future search for the causes of cancer of the lung, larynx and nasal sinuses." Speaking for one of the groups referred to by Dr. Diebert (Levin, M. L.; Goldstein, H., and Gerhardt, P. R.: *J. A. M. A.* **143**:336 [May 27] 1950), I should like to emphasize that it was not our intention to suggest that smoking is "the" cause of lung cancer or that it "tells all or most of the story of respiratory carcinogenisis." In the concluding paragraph of the paper referred to above the following statements appear: "The data suggest, although they do not establish, a causal relation between cigaret and pipe smoking and cancer of the lung and lip, respectively. The statistical association may, of course, be due to some other unidentified common factor between these types of smoking and lung and lip cancer. Cancer is now generally considered a disease attributable to multiple causative factors." The discussion continues by suggesting that tobacco may be a co-carcinogen rather than a carcinogen and that the "true nature of the association (of smoking) with lung and lip cancer remains to be determined." In other words the data on smoking and its association with cancer shows only that fact; the reason for it is a subject for further inquiry, in which we hope the National Cancer Institute will join.

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HEPATITIS FOLLOWING GOLD THERAPY

To the Editor:—I should like to comment on a statement made by Freyberg in his article on gold therapy in rheumatoid arthritis (*J. A. M. A.* **143**:418 [June 3] 1950). He states, "Hepatitis, if it is ever due to gold toxicity, is rare."

Gold has been recognized by many writers as a hepatic poison. Ottenberg and Spiegel (*Medicine*, **22**:127 [Feb.] 1943), in their monograph on jaundice due to infectious and chemical agents, state that gold is a hepatotoxic drug whose action is due to a direct injury of the hepatic parenchyma. They assert that it is similar in action to other hepatic poisons, such as arsenic, phosphorus and chloroform. These authors regard jaundice occasionally observed after gold therapy as due to a delayed action on the hepatic parenchyma. Lichtman (Diseases of the Liver, Philadelphia, Lea & Febiger, 1949, p. 355) lists gold among the hepatic poisons and states that occasionally jaundice develops after its use. Goodman and Gilman (The Pharmacological Basis of Therapeutics, New York, MacMillan, 1941, p. 751) state that, after the parenteral administration of gold, an appreciable amount is retained in the body for long periods of time and that gold is found in highest concentration in the kidney, liver and skin. According to these authors acute yellow atrophy of the liver and toxic hepatitis have been observed to follow chrysotherapy.

Darley (*Northwest Medicine* **46**:34 [Jan.] 1947) has found that hepatitis in response to gold therapy is associated with rapid enlargement of the liver and sometimes of the spleen. This is accompanied by pain in the right upper abdominal quadrant, nausea, vomiting and jaundice. Hartfall and Garland (*Lancet* **230**:1459, 1936) found eight instances of mild jaundice in 100 patients with rheumatoid arthritis given chrysotherapy. The jaundice in their patients lasted three to four weeks and left no clinical evidence of hepatic damage. It is worthy of note that these workers employed large doses of the drug. Hench (*Ann. Int. Med.* **26**:618 [April] 1947) mentions hepatitis as a complication of gold salt therapy and regards gold as a protoplasmic poison. Hartung (*Bull. New York Acad. Med.* **19**:693, 1943) lists hepatitis as one of the complications of gold salt therapy. The editors of the rheumatism review of 1948 regard hepatitis as a toxic complication of chrysotherapy and consider hepatic insufficiency as a contraindication to the use of gold salts in arthritis (*Ann. Int. Med.* **28**:131, 1948).

Of special interest in this connection is the interesting case reported by Anderson and Palmer (*J. A. M. A.* **115**:1627 [Nov. 9] 1940). They cite a fatality in a patient treated with gold salts in whom ulcerative enterocolitis developed; they describe the liver in this case as showing necrosis of the parenchymal cells around the central veins and slight fatty changes and

granulation in the peripheral cells. It is noteworthy that jaundice was not present in this fatal case, in which there was parenchymal necrosis of the liver. This is consistent with Lichtman's observation that fatal acute necrosis of the liver may occur without jaundice (*Ann. Int. Med.* **25**:453 [Sept.] 1946).

The careful and important experimental work of Block, Buchanan and Freyberg (*J. Pharmacol. & Exper. Therap.* **82**:391, 1944; ibid. **73**:200, 1941; *J. Lab. & Clin. Med.* **33**:1381, 1948) may help to explain the action of gold on the liver parenchyma. These investigators have shown that, when gold compounds are injected intramuscularly into white rats, the gold is deposited in various tissues of the body, principally in the liver and kidney. According to these workers the amount and site of deposition of gold depend on the physical properties of the gold compounds studied. Of special significance is the fact that the severity of the histological changes in the organs of gold-treated animals would seem to be proportional to the quantity of gold laid down in the tissues.

Bertrad, Waine and Tobias (*J. Lab. & Clin. Med.* **33**:1136 [Sept.] 1948) have corroborated some of the results of Block and his colleagues. They reported on gold distribution in rabbits and rats after the injection of Au^{198}, a radioactive isotope. They found that both in rabbits and rats the kidneys, spleen and liver were the organs in which gold was principally stored after parenteral administration.

Mention might also be made of three patients with rheumatoid arthritis whom I recently treated with gold salts who showed evidence of liver damage following chrysotherapy. In one patient clinical and laboratory evidence of nonicteric hepatitis developed after 120 mg. of gold sodium thiosulfate had been given (*Arch. Int. Med.* **84**:361 [Sept.] 1949). A second patient, results of whose tests of hepatic function prior to therapy were all negative, showed definite laboratory evidence of hepatic damage after receiving only 60 mg. of gold salts (unpublished data). A third patient had repeatedly negative results with cephalin flocculation tests until she had received a total of 500 mg. of gold sodium thiosulfate. At this point the results of cephalin flocculation tests became persistently positive, although clinical evidence of hepatitis did not develop. It is of interest that in this case the appearance of positive reactions to tests of hepatic function coincided with a clinical remission of the arthritis.

From the foregoing data, it would appear that toxic hepatitis, both the icteric and anicteric type, may result from chrysotherapy. Furthermore, while toxic hepatitis following chrysotherapy may be rare, gold is a hepatotoxic drug. Finally, if tests of hepatic function were routinely done on patients receiving gold salts, it is probable that more instances of parenchymatous damage of the liver due to gold might come to light.

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HOSPITALS AND EPIDEMIOLOGISTS

To the Editor:—The profession should emphatically endorse the appointment of an epidemiologist to the staff of each hospital as advocated by Dr. Felsen (*J. A. M. A.* **144**:65 [Sept. 2] 1950). Not only the outbreaks of dysentery but at all times the intramural spread of other communicable diseases, especially tuberculosis, require that one physician on the staff be charged with the duty of observing and controlling these endemics. The continued occurrence of these preventable diseases among doctors, nurses, other hospital personnel and patients in our medical institutions is a reflection on our competency to advise the community on disease prevention. A hospital epidemiologist is a major step toward ending unnecessary illness and unnecessary deaths from disease acquired right in our own territory.

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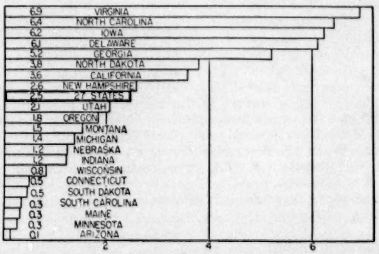
PREVENTIVE STERILIZATION IN 1949

To the Editor:—During 1949, to prevent the transmission of mental deficiency, psychosis and other hereditary diseases, 1,500 persons in 21 states were protected from parenthood by tubectomy at state or county expense (Reports of Human Betterment Foundation of California, Publication no. 5, Princeton, N. J., Birthright, Incorporated, 1950). This is an increase of 164 over the preceding year. Of these, 946 were done because of mental deficiency, 477 because of psychosis and 77 because of other hereditary handicaps. Each of these three groups was larger than in 1948. California reported the largest number, 381, followed by North Carolina (249), Virginia (215), Georgia (167) and Iowa (165). For comparisons between the states the sterilizations per 100,000 population have been calculated, using the Census Bureau's estimates for 1949, and are shown in the figure. Virginia was the leading state, with 6.9 per 100,000. The average for the 27 states having eugenic laws was 2.5 per 100,000, an increase from the rate of 2.2 in 1948 (*J. A. M. A.* **141**:773 [Nov. 12] 1949).

That no sacrifice of sexual satisfaction results from tubectomy in the average case is shown by recent studies. Of 48 sterilized women interviewed by Woodside (*West J. Surg.* **57**:600 [Dec.] 1949), five reported a slight decrease in the frequency of orgasm and eight an increase. Similarly, Garrison and



Sterilizations reported by state institutions in 1949, per 100,000 population.

Gamble (*J. A. M. A.* **144**: 293 [Sept. 23] 1950) learned from 50 men who had undergone vasectomy that there was some decrease of sexual activity for three—more than balanced by five reporting an increase.

Almost all these operations are known to have been voluntary. The report quoted indicates that written consent of the patient or his family was on file for 1,177 of the operations. In Michigan, Virginia and some institutions in Indiana, though written consent is not secured, sterilizations are undertaken only when approved by the patient or his family. Of the total of 1,500, at least 1,464, or 98 per cent, were done with such approval.

The prevention of mental deficiency which sterilization can accomplish is shown by Johnson (*Am. J. Ment. Deficiency* **54**:404 [Jan.] 1950). From the preoperative birth rates of the mentally deficient sterilized in New Hampshire and the proportion of their children who were mentally deficient, she estimates that each 100 tubectomies of females and each 200 of males would prevent the birth of 90 feebleminded children. Application of these proportions to the mentally deficient reported sterilized since the passage of the laws, 9,316 males and 16,587 females, indicates that these operations will prevent 19,120 mentally deficient children. The large financial and social savings to the community and the protection to the potential children are obvious.

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Medical Motion Pictures

Preface to a Life. 16 mm., black and white, sound, showing time 28 minutes. Produced in 1950 by the Sun Dial Films, Inc., New York, for the National Institute of Mental Health of the National Institutes of Health in cooperation with the office of Education, with the professional advice of Dr. M. Ralph Kaufman, Chief Psychiatrist of Mount Sinai Hospital, New York. Procurable on loan from State and Territorial Mental Health Authorities, on rental from Columbia University Education Film, 413 West 117th Street, New York 27, or Association Films, Inc., 35 West Forty-Fifth Street, New York 19, and on purchase from Castle Films, 1445 Park Avenue, New York 19.

The film begins, appropriately, with an infant boy lying innocent and helpless under the fond gaze of his adoring parents. Then, in prophetic flashes, several scenes depict just what types of satisfaction from their son each parent may, in anticipation, selfishly "adore." Thus the mother may hope for a meek, selfless youth who will cling eternally to her, whereas the father pictures a hero whose achievements will bring glory to the paternal name.

The child is then shown growing up through his formative years, influenced by his parents, his neighbors, his teachers, his playmates and others who, through their treatment of him, can inculcate patterns of good or evil in his human relationships. Then, too, alternative scenes demonstrate how he may be prepared for the birth of a second child into the home: For example, parental impatience may render him rivalrous and hostile, whereas understanding and love during his first sibship experiences may make him proud and protective of his younger brother.

As is almost inevitable in so condensed a review, the film oversimplifies some of its material, and it does not deal with the economic deprivations, the discriminations, the effects of physical illness and the many other adverse social and personal experiences that may seriously warp character. All mention of therapy, too, is omitted, so that the theme of predetermined fatalism is somewhat overemphasized. Nevertheless, this film should furnish a personal and pointed lesson to all intelligent human beings who deal with children; it can be used effectively for this purpose by PTA groups, social workers and the medical profession.

The photography and narration are excellent and the direction is outstanding.

The Heart. Cardiovascular Pressure Pulses and Electrocardiography. 16 mm., color, sound, showing time 35 minutes. Prepared by Carl J. Wiggers, M.D., Professor of Physiology, Western Reserve School of Medicine, and Franklin D. Johnston, M.D., Professor of Medicine, University of Michigan Medical School. Produced in 1950 under a grant by the medical department of G. D. Searle & Co. Procurable on loan from Medical Editor, G. D. Searle & Co., Post Office Box 5110, Chicago 80.

This motion picture consists of two unrelated sections. The first section presents the subject of cardiovascular pressure pulses and their significance. Action of the animal heart is illustrated and explained in animation. The blood pressures produced in the various chambers during the cardiac cycle are illustrated and related to electrocardiographic events. A standard teaching model is used in an attempt to explain the genesis of the pressure pulses. The need for teaching films on the significance of pressure relations within the cardiovascular system has increased enormously with the advent of cardiac catheterization technics and modern cardiac surgery. This film makes an attempt to meet the need.

From the teaching standpoint, too many concepts are presented at once, rather than the introduction of single points, with a later synthesis. Thus, several pressure pulses are given simultaneously instead of separately. Unnecessary attention is given to artefacts in the artificial circulation model used to demonstrate hydrodynamic principles. It probably would have been preferable to introduce the significance of the pressure pulses with a discussion of modern catheterization technics rather than by the demonstration of the older trocar methods of obtaining these pressures. Scenario, animation, color, sound and teaching technics are only fair in quality. This section is scientifically accurate and will be of interest to sophomore and junior medical students and to interns interested in reviewing these phases of physiology. It would probably be of little interest to medical societies or hospital staff groups.

The second section of the film introduces certain technical, theoretical and practical aspects of electrocardiography. The placing of electrodes on the body is illustrated. The fact that the exact site of an electrode on a limb is of no importance is emphasized. A few arrhythmias are briefly mentioned. The viewer is properly warned against relying too heavily on technical data obtained with the electrocardiogram, and attention is called to the need for a thoughtful synthesis of both technical data and clinical judgment in arriving at a diagnosis. The technic is of the same quality as in the first half of the film. The facts given in the film are correct. This section of the film may be of interest to third and fourth year medical students, interns and general practitioners who have had little recent contact with electrocardiography. It does not add to the knowledge of medical residents or internists.

Generally speaking, the photography is very good. It consists of a series of blackboard demonstrations with the addition of a series of drawings and a few brief animated sequences. More closeup views would have been desirable. A 20 page booklet supplements this motion picture. It contains many colored illustrations of scenes from the film and a brief bibliography.

Your Voice. 16 mm., black and white, sound, showing time 10 minutes. Prepared in collaboration with William J. Temple, Ph.D., Brooklyn College, and Delinda Roggensack, M.A., Cornell College. Produced in 1949 by and procurable on rental or purchase from Encyclopaedia Britannica Films, Inc., 1150 Wilmette Avenue, Wilmette, Ill.

This motion picture gives a good representation of voice production for speech and song. All aspects of voice production are included: breathing, phonation, resonance and articulation.

The presentation of the material is orderly; first animated drawings are used to show the fundamental activities in voice production, and then roentgen motion pictures, the oscilloscope and high speed motion picture photography of the activity of the vocal folds are utilized.

Although this film will probably have its greatest usefulness for students of speech and music, the most advanced scholars in the field can view this presentation with real interest.

The photography, animation and narration are excellent.

Malignant Oral Tumors: 16 mm., color, sound, showing time 40 minutes. Produced in 1950 by the U. S. Army. Procurable on loan from the Army Surgeon of the Army Area in which the request originates.

This motion picture demonstrates a rather lengthy series of lesions which occur in the oral cavity and adjacent structures. Part I illustrates and stresses the importance of paying attention to the ordinarily common occurring lesions in the mouth which are benign and which may have degenerative implications. In part II the emphasis has been placed on the malignant lesions. The diagnosis has been made both clinically and by biopsy. Treatment plans are discussed. It is presumed that this film is not intended to portray complete fields of diagnosis and treatment of malignant lesions of the mouth. There is no discussion of differential diagnosis.

This film will be particularly beneficial to dentists in general practice and in the field of oral surgery as well as to surgeons, general practitioners, residents and medical students. Residents in dentistry would also find the film instructive and profitable. The photography is fair to good.

NEW MOTION PICTURES ADDED TO A. M. A. FILM LIBRARY

Ultrasound in Medicine. 16 mm., black and white, silent, 1,059 feet (2 reels), showing time 27 minutes. Prepared by the Department of Gynecology and Obstetrics, University of Erlangen. Procurable on loan (service charge $3) from the Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

This motion picture deals with a new and comparatively unknown application of sound waves. The physical principles of supersonic sound waves and various experiments are illustrated in reel 1. The application of ultrasound therapy in medicine, including such conditions as prostatitis and superficial carcinomas, is depicted in reel 2. The results shown in this picture are only the beginning of a new and young science which is worthy of attention and further investigation.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Dental Practice Acts: Restriction on Ownership of Dental Offices Upheld.—The state filed suit for an injunction to restrain the defendants from engaging in the unlicensed practice of dentistry. From a judgment in favor of the defendants, the plaintiff appealed to the Supreme Court of Washington.

Defendants Boren and Shepherd never have been licensed to practice dentistry in the state. Defendant Harlow has been, and at all times involved in this transaction was, licensed to practice dentistry in the state. For some time Boren and Shepherd had been associated together as partners (known as Dental Management Company) in the ownership, maintenance and operation of offices in the state for the practice of dentistry. One of such offices was in Seattle. The equipment and furnishings therein cost the defendants over $13,000. In 1947 the partnership entered into a conditional sales contract for the business and equipment with the defendant Harlow for a consideration of $55,000. Dr. Harlow agreed to pay $750 a month on the contract and as part of this deal Boren was employed as manager at $500 a month. Dr. Harlow testified turning Boren's status: "He manages the office end of it, buying the supplies and watching the charts and making out the accounts and payments, and general manager, and looking after the advertising." Under this arrangement Dr. Harlow also drew a salary of $500. So we find, said the court, that in addition to the ordinary costs of operation, there was each month paid out of the business the following: to Dental Management Company, on contract, $750; to Dr. Harlow, salary, $500, and to Mr. Boren, salary, $500. But this was not all, the court continued. From March 1947 to January 1948, there was paid to Boren, in sums ranging from $500 to $1,500 as a "bonus," a total of $7,500. Dr. Harlow testified that the "bonus" payments were given in appreciation of the increase in business. No explanation was given as to why this money was not paid to the partnership in reduction of the contract obligation.

The dental practice act of the state of Washington formerly provided that all persons shall be said to be practicing dentistry who shall own, run or manage a dental office. In an early Washington case, *State v. Brown* (37 Wash. 97, 79 P. 635), this portion of the dental practice act was held to be unconstitutional. The present dental practice act provides that a person practices dentistry within the meaning of this act who owns, maintains or operates an office for the practice of dentistry. It will thus be seen, said the Supreme Court, that the provisions of the two acts are practically identical. In the Brown case the Supreme Court said, among other things, "To own and manage property is a natural right, and one which may be restricted only for reasons of public policy, clearly discernible. To hold this portion of the statute valid would be to make possible conditions which were never designed to exist. . . . A consideration of the province of the police power, in the light of constitutional rights, would seem to show, beyond controversy, that in the enactment of this portion of the statute the legislature transcended its authority. Should the owner or manager hire operators not legally qualified, or should they participate in the treatment or operations mentioned in the other portion of the statute, they would, of course, be amenable to and punishable under those provisions. But we are unable to say or perceive that the health, moral or physical welfare of the public, or any of the personal or property rights of its individuals, are endangered by the ownership and management of a dental office, so long as those employed therein to do the actual dentistry work are qualified and licensed as by law required." In the present case the plaintiff urged that the Brown case be examined and overruled.

The Supreme Court discussed a number of cases from other jurisdictions and pointed out that the general rule throughout the country is that no unlicensed person or entity may engage in the practice of medicine, surgery or dentistry through licensed employees. We have been unable to find, said the court, a state court which has cited *State v. Brown* with approval. In fact, we have been unable to find that this court has cited it with approval. We agree with the general statement in *State v. Brown* that "to own and manage property is a natural right." But there is a clear distinction between the right of the state to interfere with the owning and managing of property, as such, and its right, under its police power, to protect the health of its people. Experience has shown that the care and treatment of the teeth requires, not only skill, but the personal relationship between dentist and patient. It requires the services of a trained expert, learned in his profession. The care and treatement of the teeth is not a business. It is not a commercial transaction. It is a profession. A person may own and sell dental equipment and supplies, but the state, in the exercise of its police power, has said that he cannot, without a license, practice dentistry. The state has said, in its wisdom, that a person practices dentistry "who owns, maintains or operates an office for the practice of dentistry." There can be no question but that the activities of Boren and Shepherd come within this definition. The state has decided that such a practice does not adequately protect the health of its people. Clearly, such a regulation is a reasonable exercise of its police power. Accordingly the Supreme Court overruled the decision in *State v. Brown*, reversed the judgment of the trial court and remanded the case with directions to grant the injunction requested.—*State et al. v. Boren et al., 219 P. (2d) 566 (Wash., 1950).*

Prenatal Injuries: Liability for Injuries to Infant Received Prior to and During Birth.—This was an action for damages for the wrongful death of a 3 month old child from cerebral injuries received prior to birth. From a judgment in favor of the defendant, which was reversed by the court of appeals, the defendant appealed to the Supreme Court of Ohio.

The mother of the deceased, while in her eighth month of pregnancy, was a victim of an automobile accident. As a result thereof she went into immediate labor and the deceased was born one month prematurely. The deceased died three months later as a result of cerebral injuries received from the direct blows to his mother and from the premature delivery. The sole question raised on appeal, said the Supreme Court, is: Does an administrator of the estate of a child who, while viable, suffered a prenatal injury through the alleged negligent act of another and who died approximately three months after its birth as a result of such injury have a cause of action under the wrongful-death statute against such other for damages for the benefit of the parents of such infant?

In the recent case of *Williams, an Infant v. Marion Rapid Transit, Inc.* (82 N. E. (2d) 423; *J. A. M. A.* **139**:544 [Feb. 19] 1949), this court held that an unborn viable child injured by another's negligence may, after birth, maintain an action for such injury. The rationale of this decision, said the Supreme Court, is that an unborn viable child is a "person" within the meaning of Section 16, Article I, of the Ohio Constitution, and if injured before birth may, after birth, maintain an action for such injury. The present wrongful-death statute of Ohio provides, in part, as follows: "When the death of a person is caused by wrongful act . . . such as would have entitled the party injured to maintain an action and recover damages in respect thereof, if death had not ensued . . . the person who would have been liable if death had not ensued . . . shall be liable to an action for damages, notwithstanding the death of the person injured. . . ."

If we adhere to the interpretation of the word "person" used in the statute, as including an unborn "viable child," as held in the Williams case, said the Supreme Court, the language of the wrongful-death statute is clear, unambiguous and does not require interpretation. Applying the decision of the Williams case to the facts of this case, the court held that since the deceased would have been able to maintain an action for damages if he had lived, his legal representative may maintain the action after his death. Accordingly the judgment of the court of appeals in favor of the plaintiff was affirmed.—*Jasinsky v. Potts, 92 N. E. (2d) 809 (Ohio, 1950).*

CURRENT MEDICAL LITERATURE

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

52:1-132 (July) 1950. **Partial Index**

Serological Tests in Diagnosis and Prognosis of Coccidioidomycosis. C. E. Smith, M. T. Saito, R. R. Beard and others.—p. 1.

Ability of Avian Malaria Parasite, Plasmodium Lophurae, to Infect Erythrocytes of Distantly Related Species of Animals. R. B. McGhee. —p. 42.

Q Fever in California: I. Observations on Vaccination of Human Beings. G. Meiklejohn and E. H. Lennette.—p. 54.

Some Epidemiological Aspects of Cirrhosis of Liver: Study of Mortality Statistics. A. M. Lilienfeld and R. F. Korns.—p. 65.

Kinetics in Thermodestruction of Cysts of Endamoeba Histolytica in Water. S. L. Chang.—p. 82.

Isolation of Common Cold Virus in Chick Embryos and Clinical Manifestations It Produces in Human Volunteers. T. G. Ward and D. F. Proctor.—p. 91.

Use of Radioactive Phosphorus in Studies of Chick Embryo Infections with Common Cold Virus. T. G. Ward.—p. 107.

American Journal of Medicine, New York

9:1-140 (July) 1950

Further Clinical and Experimental Studies on Pathogenesis of Cushing's Syndrome. P. Heinbecker and M. Pfeiffenberger Jr.—p. 3.

*Effects of Adrenocorticotropic Hormone (ACTH) in Gout. A. B. Gutman and T. F. Yü.—p. 24.

Increased Renal Excretion of Urate in Young Patients with Gout. M. Friedman and S. O. Byers.—p. 31.

*Toxicity of Carinamide: Review of 1,997 Patients. W. P. Boger and J. W. Crosson.—p. 35.

Congenital Thrombocytopenic Purpura: Purpura Hemorrhagica in Pregnancy and in the Newborn. R. D. Epstein, E. L. Lozner, T. S. Cobbey Jr. and C. S. Davidson.—p. 44.

Intestinal Lavage in Potassium Intoxication of Lower Nephron Nephrosis. M. H. Hicks, A. J. Crutchfield and J. E. Wood Jr.—p. 57.

Pituitary Adrenocorticotropic Hormone in Gout.—Gutman and Yü point out that indications for the use of pituitary adrenocorticotropic hormone (ACTH) in gout are uncertain; according to recent reports the drug seems capable of both terminating and eliciting acute gouty arthritis. They report observations on 11 attacks occurring in 10 patients. The hormone was given for four days in doses of 100, 55, 30 and 20 mg. per day, in four divided doses each day. The action of the hormone in interval gout was investigated eight times in five patients, most patients receiving 100 mg. per day for four days, in four divided doses each day. All patients were hospitalized and placed on a low protein, low purine diet before and during therapy. A rapid and satisfactory response occurred in the local and systemic manifestations of acute gout in seven of 11 attacks treated, including one in a patient who was refractory to colchicine. Pituitary adrenocorticotropic hormone therefore appears to be useful in acute gout. In many of these patients the hormone was not convincingly superior to colchicine, and in four instances colchicine terminated attacks responding unsatisfactorily to hormone. Unlike colchicine, it is not suitable for prophylactic use in the prevention of acute gouty attacks. Exacerbation of symptoms occurred in four patients after discontinuance of hormone therapy after a satisfactory response. Such exacerbations usually suggested reappearance of disease on termination of the suppressive effects of pituitary adrenocorticotropic hormone rather than initiation of a new attack of acute gout. The conjoint and continued prophylactic use of colchicine seems rational in patients subject to frequent recurrences. Acute gouty arthritis developed only once in eight cases of interval gout when the hormone was given and then abruptly discontinued. The use of pituitary adrenocorticotropic hormone is neither feasible nor desirable in the prevention and treatment of chronic tophaceous gout. Salicylates and carinamide (4′-carboxyphenylmethanesulfonanilide) are at least as effective and are more readily available.

Toxicity of Carinamide.—According to Boger and Crosson carinamide (4′-carboxyphenylmethanesulfonanilide) suppresses human renal excretion of penicillin and elevates the plasma concentrations of penicillin two to seven times. Since the drug is administered to inhibit the function of a transport mechanism of the renal tubules, it is pertinent to inquire whether this can be accomplished without interference with normal renal function and without toxicity of such a degree as to prohibit its use. The authors reviewed the evidence of toxicity in 1,997 patients to whom carinamide was given. They found a low toxicity. Exclusive of nausea (12.1 per cent) and vomiting (5.5 per cent), the incidence of toxic manifestations was less than 2 per cent. True drug sensitivity was confirmed in 14 patients and could be assumed in 23 additional cases, although the concurrent administration of penicillin raises some questions as to the causative role of carinamide in all of the latter cases. Nausea may preclude treatment with the drug, but this symptom may in large measure be ascribed to the mechanical factor of swallowing a large and often repeated dose of the drug rather than to its toxicity. There is no indication that carinamide interferes with the elimination of normal nitrogenous metabolites or permanently impairs renal function. Since carinamide is excreted almost entirely by glomerular filtration and since subclinical grades of renal impairment cause accumulation of the drug in the circulation, dosage should be individualized and controlled by determinations of plasma carinamide.

American Journal of Pathology, Ann Arbor, Mich.

26:505-754 (July) 1950. **Partial Index**

Concept of Collagen Diseases. P. Klemperer.—p. 505.

*Neurilemmoblastosis: Influence of Intrinsic Factors in Disease When Development of Body is Abnormal. K. Inglis.—p. 521.

Pathogenesis of Experimental Fat Embolism. J. W. Harman and F. J. Ragaz.—p. 551.

Teratoma of Neck in Region of Thyroid Gland: Review of Literature and Report of Four Cases. G. F. Bale.—p. 565.

Amyloid and Myeloma. D. C. Dahlin and M. B. Dockerty.—p. 581.

Pathologic Changes Induced in Guinea-Pigs by Administration of Diets Deficient in Anti-Stiffness Factor. P. N. Harris and R. M. Wulzen. —p. 595.

Combined Histochemical Staining of Acid Polysaccharides and 1,2 Glycol Groupings in Paraffin Sections of Rat Tissues. H. B. Ritter and J. J. Oleson.—p. 639.

Histochemical Studies on Tissue Enzymes: VI. Difficulty in Histochemical Localization of Alkaline Phosphatase in Nuclei. I. Feigin, A. Wolf and E. A. Kabat.—p. 647.

Neurilemmoblastosis.—Inglis presents a hypothesis to provide a reasonable explanation of the relation of the various lesions seen in patients with "tuberous sclerosis" of the brain. Specific nerve sheath tissue is of outstanding importance in this problem. This term is used synonymously with neurilemma and sheath of Schwann. The hypothesis suggested that there is a common factor underlying all the extracerebral lesions comprised in the tuberous sclerosis complex. This common factor, called the neural intrinsic factor, is intrinsic in nature and neural in origin. The author uses the term neurilemmoblastosis to describe a

condition characterized by lesions, many of which are distinguished by the presence of cells regarded as akin to those that form the neurilemma or sheath of Schwann. Glioneurilemmoblastosis is suggested as a suitable name when the brain is affected as well as other parts of the body. The term neurilemmoblastoma is used when the specific tissue of neurilemmoblastosis forms a tumor mass. Liponeurilemmoblastoma is the name given to a tumor composed of a mixture of neurilemmoblastic tissue and lipomatous (adipose) tissue. Cellular tissue in renal tumors associated with tuberous sclerosis and cellular tissue found in cystic disease of the lung, widely regarded as involuntary muscle, is interpreted by Inglis as being akin to specific nerve sheath tissue (neurilemma, sheath of Schwann) and as constituting part of a systemic disease for which the name neurilemmoblastosis is used. Congenital polycystic disease of the kidneys, cystic disease of the lung and certain developmental abnormalities of the circulatory system are thought to be linked with neurilemmoblastosis, possibly at the basic intrinsic factor level.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

34:301-400 (July) 1950

Effect of Treatment on Prognosis of Cardiovascular Syphilis. C. W. Barnett and A. A. Small.—p. 301.
Studies in Cardiovascular Syphilis: I. Preliminary Report. P. Padget, B. Webster, P. M. Densen and others.—p. 319.
Reinfection in Experimental Syphilis in Rabbits Following Penicillin Therapy: III. Development of Immunity in Early Syphilis. R. C. Arnold, R. D. Wright and S. Levitan.—p. 324.
Id.: IV. Development and Character of Immunity in Latent Syphilis. R. C. Arnold, R. D. Wright and C. McLeod.—p. 327.
*Results of Single and Multiple Injection Schedules for Treatment of Early Syphilis with Penicillin in Oil and Aluminum Monostearate. E. W. Thomas, C. R. Rein, S. Landy and D. K. Kitchen.—p. 331.
Chloramphenicol (Chloromycetin) in Experimental Syphilis of Rabbits. O. M. Gruhzit and R. A. Fisken.—p. 338.
Studies of Antigenic Relationship of D. Granulomatis to Members of Tribe Escherichieae. H. Packer and J. Goldberg.—p. 342.
Incidence of Lymphogranuloma Venereum as Determined by Quantitative Complement-Fixation Test. N. M. Luger.—p. 351.
Gumma Simulating Tumor of Cauda Equina. R. G. Thompson and R. H. Preston.—p. 346.
Syphilide Cornee in Early Syphilis: Report of Case. T. S. Saunders and G. Youngstrom.—p. 361.
Variations of Serologic Pattern in Patients Given Penicillin Therapy for Supposed Early Latent Syphilis. E. W. Thomas, S. Landy and L. de Mello.—p. 364.
Follow-Up Report on Penicillin Failures in Neurosyphilis. B. Dattner. —p. 373.
Effectiveness of Antichancroidal Drugs Tested by Autoinoculation of Bubo Fluid. R. R. Willcox.—p. 378.
Gumma of Lung, Proved by Demonstration of Treponema Pallidum. J. W. Smith, G. L. Laqueur and C. W. Barnett.—p. 383.

Single and Multiple Injection Schedules in Early Syphilis with Repository Penicillin.—According to Thomas and his co-workers the Syphilis Study Section of the National Institutes of Health sponsored a cooperative study of three different schedules of procaine penicillin in oil and aluminum monostearate (PAM) therapy for dark field positive early syphilis. The first schedule consisted of a single injection of 1,200,000 units, the second of 1,200,000 units once a week for two weeks and the third of 1,200,000 units once a week for four weeks. At Bellevue Hospital some patients received 2,400,000 units in a single injection. Of 71 patients given a single injection of 1,200,000 units or 2,400,000 units of procaine penicillin in oil and aluminum monostearate and followed for six to 20 months, 60 were completely seronegative when last examined. Of 67 patients treated with 1,200,000 units once a week for two weeks and followed for six to 20 months, 41 were seronegative when last examined, and of 68 patients who received four injections 41 were seronegative. Although when last examined more patients were seronegative in the series that received a single injection than in those who received two or four weekly injections, when the selection of patients is taken into account, there are no significant differences in the results obtained with the three treatment schedules. These and other reports indicate that a single injection of 1,200,000 or 2,400,000 units of procaine penicillin in oil and aluminum monostearate gives as good results in the treatment of early syphilis as injections of 1,200,000 units once a week for two or four weeks. The data suggest that weekly intervals between injections of procaine penicillin in oil and aluminum monostearate are too long for maximum effect. Better results might be obtained with injections of 1,200,000 units every two or three days or even at daily intervals. For early syphilis, however, it appears that a single treatment has had successful results in the great majority of patients.

Annals of Internal Medicine, Lancaster, Pa.

33:1-274 (July) 1950

Synthetic and Fermentation Type Chloramphenicol (Chloromycetin) in Typhoid Fever: Prevention of Relapses by Adequate Treatment. J. E. Smadel, C. A. Bailey and R. Lewthwaite.—p. 1.
Influence of New Benzoic Acid Derivative on Metabolism of Para-Aminosalicylic Acid (PAS) and Penicillin. W. P. Boger, J. O. Beatty, F. W. Pitts and H. F. Flippin.—p. 18.
*Infection of Laboratory Workers with Coxsackie Viruses. E. W. Shaw, J. L. Melnick and E. C. Curnen.—p. 32.
*Multiple Myeloma: Study of 24 Patients Treated with Radioactive Isotopes (P^{32} and SR^{89}). J. H. Lawrence and L. R. Wasserman.—p. 41.
Phonocardiographic Study of Apical Diastolic Murmurs Simulating Those of Mitral Stenosis. A. A. Luisada and L. Pérez Montes.—p. 56.
Therapy of Acute Barbiturate Poisoning: Report of Three Cases. M. Roche, L. C. Wynne and D. M. Haskins.—p. 73.
Pulmonary Involvement in Typhoid and Paratyphoid Fevers. F. A. Neva.—p. 83.
Present Rôle of Artificial Kidney in Clinical Therapy. J. P. Merrill. —p. 100.
Addiction to Barbiturates and Barbiturate Abstinence Syndrome. H. Isbell. —p. 108.
Abdominal Epilepsy Versus "Abdominal Migraine." M. T. Moore.—p. 122.
Clinicopathologic Study of Bronchial Asthma with Consideration of Its Relationship to "General Adaptation Syndrome." B. M. Winer, J. F. Bickey and M. S. Segal.—p. 134.
Gold Therapy in Early Rheumatoid Arthritis. C. H. Adams and R. L. Cecil.—p. 163.
Cardiac Arrhythmias Produced During Right Heart Catheterization: Report of Two Cases of Transient Partial Right Bundle Branch Block. A. Ravin, S. Dressler, G. Bronfin and A. Hurst.—p. 174.
Electrocardiogram in Congenital Heart Disease (Postmortem Correlation Study of 53 Cases). M. H. Uhley.—p. 188.

Infection of Laboratory Workers with Coxsackie Viruses.—According to Shaw and his collaborators a filtrable agent capable of causing fatal paralysis and myositis in suckling mice and hamsters was isolated in 1947 from the feces of two children with paralytic illness diagnosed as poliomyelitis. Additional isolation of this agent and its identification as a virus was reported later. Similar viruses isolated from patients with illness resembling nonparalytic poliomyelitis and epidemic pleurodynia or from specimens of sewage and from flies have been studied in the laboratory with which the authors are connected. These agents were designated as the Coxsackie or C group of viruses. Early in 1949, three laboratory workers, while conducting investigations with the "C virus," experienced febrile illness. The onset of illness followed five days after an accidental contamination of the mouth of one worker while pipetting a suspension which contained the virus. During the acute stage of the sickness, virus pathogenic for infant mice was recovered from the feces of all three of these workers and from the pharynx of two. Serum obtained from each after recovery neutralized the Connecticut 5 strain of virus, whereas serum obtained prior to illness or during the acute stage did not. Serum obtained 10 days after an accidental aspiration of virus and only five days after the onset of symptoms in the third case showed a neutralization index of more than 1,000. In all three patients abdominal and thoracic pain were prominent symptoms, while signs of meningeal irritation were absent. Considerable variations may be encountered in the clinical manfestations of infection by C virus. In addition to the studies on the three patients, specimens of serum from 27 persons associated with the section of preventive medicine were tested for their capacity to neutralize the virus. The serum from 18 gave negative results. Four had a neutralization index between 10 and 100. Five showed a neutralization index of 1,000 or over. Since this report was written, three more laboratory workers have contracted infection with strains of Coxsackie virus.

Multiple Myeloma: Treatment with Radioactive Isotopes.—Lawrence and Wasserman report observations on 24 patients (14 men and 10 women), all but three of whom were treated with radioactive isotopes. Of the 21 so treated nine received both radioactive phosphorus (P^{32}) and radioactive strontium (Sr^{89}), 11 were treated with P^{32} alone and one received only colloidal radioactive yttrium (Y^{90}). Only two of these patients are still living. Fifteen had received roentgen therapy before they were treated with radioactive isotopes.

Anemia, in some instances probably due to previous roentgen therapy, was noted in 11 cases prior to treatment with radioactive isotopes, and it developed in 10 other patients while they were being treated with isotopes. Leukopenia was noted in four patients when first seen; it developed in three additional patients during treatment with P^{32}. Seven of the 21 were not benefited by the treatment with P^{32} or Sr^{89} or both; in eight other patients the benefit was questionable; in five patients results of treatment with radioactive isotopes were relatively satisfactory. The results obtained with radioactive isotopes were not much better than those obtained with roengen rays and with stilbamidine (4:4'-diamidinostilbene). However, the radioactive isotopes are more easily applied than roentgen therapy and have no side effects. At times combination of isotope therapy and roentgen ray was more effective than either alone. It seems unlikely that radiostrontium will be a valuable therapeutic agent because of its selective deposition and long half-life (55 days). An amount of radiostrontium sufficient to destroy tumor cells would produce damaging effects on the normal marrow before destruction of the neoplastic lesions could be achieved. Combination therapy with P^{32} or Sr^{89}, the diamidine compounds, and urethane would seem to be a worth while approach. Radioactive stilbamidine may be of value because of its combined chemotherapeutic and possible selective irradiation effects.

Archives of Neurology and Psychiatry, Chicago

64:165-312 (Aug.) 1950

Direct Reorientation of Behavior Patterns in Deep Narcosis (Narcoplexis). R. M. Brickner, R. T. Porter, W. S. Hemer and J. J. Hicks. —p. 165.
Recent Contributions to Anatomy and Physiology of Cerebellum. R. S. Snider.—p. 196.
Focal Electroencephalographic Changes in Unilateral Electric Convulsion Therapy. M. F. Blaurock, F. M. Lorimer, M. M. Segal and F. A. Gibbs.—p. 220.
Treatment of Tumors of Pineal Body: Experience in Series of 22 Cases. G. Horrax.—p. 227.
Nature of Schizophrenic Process: Working Hypothesis for Therapy. R. L. Jenkins.—p. 243.
Deaths Associated with Electric Shock Therapy: Report of 3 Cases. E. V. Eyman and H. H. Morris Jr.—p. 263.

Archives of Surgery, Chicago

61:1-192 (July) 1950

Stepping Stones to Success in Practice of Surgery. R. L. Sanders. —p. 1.
Men of Two Worlds. H. Ogilvie.—p. 7.
Elongation and Digitization of First Metacarpal for Restoration of Function of Hand. W. C. Graham, J. B. Brown and B. Cannon.—p. 17.
Benzalkonium Chloride (Zephiran Chloride®) as Skin Disinfectant. P. B. Price.—p. 23.
Mechanism of Blood Flow in Veins of Abdomen and Lower Extremities. W. D. Gatch.—p. 34.
Ruptures of Quadriceps Tendon: Study of 14 Tendon Ruptures. C. Scuderi and E. L. Schrey.—p. 42.
Dextran in Supportive Therapy, with Comments on Periston and Gelatin. J. S. Lundy, H. K. Gray and W. M. Craig.—p. 55.
Serum and Urinary Potassium in Surgical Patients. C. D. Snyder and H. E. Snyder.—p. 62.
Acute Pyogenic Thyroiditis. W. A. Altemeier.—p. 76.
*Influence of Vagotomy on Peptic Ulcer, Gastric Acidity and Motility: Follow-Up Study on 68 Patients and Evaluation of Operation. W. Walters and M. M. Fahey.—p. 86.
Diffuse Polyposis of Stomach: Total Gastrectomy. R. A. Wise.—p. 95.
Total Gastrectomy: Investigation of Merits of End to End Esophagoduodenostomy. E. S. Judd Jr. and J. R. Hoon.—p. 102.
Factors Responsible for Improved Results in Management of Acute Intestinal Obstruction. C. W. McLaughlin Jr. and J. H. Brush. —p. 115.
Massive Resection of Small Intestine: Report of Case. E. S. Shonyo and J. A. Jackson.—p. 123.
Surgical Decompression of Colon for Malignant Obstruction: Description of Technic. C. J. Hung.—p. 131.
Low End to Side Rectosigmoidal Anastomosis: Description of Technic. J. W. Baker.—p. 143.
*Meckel's Diverticulum: Survey of 103 Cases. G. D. Jay III, R. R. Margulis, A. B. McGraw and R. R. Northrip.—p. 158.
Surgical Emergency of Diaphragmatic Hernia in Infancy. C. J. Baumgartner and R. F. Scott.—p. 170.
Massive Hemorrhage in Upper Part of Gastrointestinal Tract: Emphasis on Atypical Type. R. H. Loe.—p. 183.

Influence of Vagotomy on Peptic Ulcer.—Walters and Fahey report on 68 patients in whom Walters had performed a vagotomy in the preceding 24 months. Forty-two of these patients returned to the clinic for evaluation. Questionnaires were answered by the remaining 26. The authors conclude that vagotomy without an operation to assist in the dilution of gastric acidity, such as gastroenterostomy, pyloroplasty or partial gastrectomy, does not give impressive results even in cases in which results of insulin tests are negative. When vagotomy alone is performed for duodenal ulcer, the short term results do not compare well with the long and short term results of partial gastrectomy. The difference in results in various surgical centers where vagotomy alone is used in the treatment of duodenal ulcer probably depends on the size of the duodenal ulcer, its chronicity and on the degree of obstruction which it is producing. For example, if vagotomy is performed for small nonobstructive duodenal ulcers, the results would probably be much better than if the operation is done for large, more chronic, recurring lesions. It is only when an additional procedure is done which assists in the reduction of secretion and gastric acidity that the short term results of vagotomy measure up to the short term results of partial gastrectomy. There is no place for vagotomy in the treatment of gastric ulcer. Partial gastrectomy in cases in which the gastric lesion is removed is followed by such excellent results and carries such a low risk (and the possible malignant lesion is removed) that the authors prefer this operation to any other. Removal of the ulcer and partial gastrectomy seems also to be the operation of choice in the treatment of gastrojejunal ulcer after a gastroenterostomy. Vagotomy seems indicated for recurring ulcers which develop after adequate resection of the stomach. A disturbing factor in the evaluation of the results of vagotomy is the relief of symptoms and the subjective improvement experienced by some patients with persistence of the ulcer as shown by gastroscopic and roentgenologic examination.

Meckel's Diverticulum.—Jay and his associates review 103 cases of proved Meckel's diverticulum observed at Henry Ford Hospital from 1918 to 1948. Analysis of these cases and reports of the literature indicate that the incidence of this anomaly in the general population is between 1 and 2 per cent. A predominance in males has been reported, the ratios varying between 2:1 and 9:1. The cases studied by the authors included 71 males and 32 females, a ratio of about 2:1. Acute disease processes in Meckel's diverticulum are most likely to occur in the younger age group. In children the salient features are rectal bleeding, with low blood hemoglobin levels, pain or tenderness in the right lower abdominal quadrant and the periumbilical area, nausea and vomiting. Seventy-two per cent of the diverticula lie within the terminal 36 inches (91 cm.) of ileum. Twenty-eight per cent of the lesions will be missed if search of the ileum is not made above this level. In the cases of Meckel's diverticula which produced symptoms, 60 per cent of the specimens examined contained a gastric type of mucosa. In the group which were incidentally found at operation or autopsy only 22 and 17 per cent, respectively, contained such mucosa. Meckel's diverticulum should be excised or the ileal segment resected.

Bulletin of Los Angeles Neurological Society

15:61-98 (June) 1950

*Treatment of Neuronitis with BAL. J. M. Nielsen.—p. 61.
Mechanism of Coup-Contrecoup Injuries of Brain: Critical Review of Recent Experimental Studies in Light of Clinical Observations. C. B. Courville.—p. 72.
Paget's Disease and Intracranial Tumor: Association of Astrocytoma of Right Temporal Lobe with Osteitis Deformans. M. N. Estridge. —p. 87.
Traumatic Pneumocephalus: Brief Review with Report of Case. E. T. Yuhl and M. N. Estridge.—p. 93.

BAL in Treatment of Neuronitis.—Nielsen reports 10 patients with Guillain-Barré syndrome whom he treated with dimercaprol (BAL) injection. The criterion for the selection of cases was polyneuritis with albuminocytologic dissociation in the spinal fluid and considerable increase of total protein above the normal, or polyneuritis with facial diplegia. Benefit was derived in nine cases from the use of dimercaprol as shown by improvement when it was given and cessation when it was discontinued. In one patient, a diabetic, there was no improvement. In some instances the course was prolonged, but it seemed as though a fatal outcome would have resulted without dimercaprol

therapy. Several patients showed immediate but unsustained improvement. The author maintains that the Guillain-Barré syndrome is not an entity etiologically, clinically, pathologically or therapeutically. The syndrome is basically a manifestation of a toxic interference with enzyme metabolism of ganglion cells which can be aided with dimercaprol. Dosage seems to vary not only with etiology but in the same case at various times. The dosage used was 2.5 mg. per kilogram of body weight, reduced or augmented as circumstances seemed to require. The author makes no claim that all patients with the syndrome can be cured with this drug.

California Medicine, San Francisco

73:1-136 (July) 1950

WHAT'S NEW—A PANEL DISCUSSION

What's New in Thyroid Surgery. W. H. Cole.—p. 1.
What's New in Cardiovascular Surgery. F. Gerbode.—p. 7.
What's New in Isotopes, 1950. R. R. Newell.—p. 11.
Background of Delinquency. L. Porter.—p. 16.
Leading Causes of Childhood Death. E. B. Clark.—p. 22.
Chronic Ulcerative Colitis—Psychosomatic Factors. A. C. Reed.—p. 27.
Diagnosis and Differential Diagnosis of Poliomyelitis: Management of Patients in Hospital Admitting Room. W. P. Frank, S. S. Woolington and G. E. Rader.—p. 30.
Endemism of Coccidioidomycosis in Paraguayan Chaco. R. F. Gomez.—p. 35.
Cytology of Postnasal Drip. R. M. Moose.—p. 39.
Anuria and Oliguria: Treatment by Conservative Means, Case Report, with Determination of Blood Volume and Nan Space. Part II. J. J. Hopper Jr. and J. W. Partridge.—p. 42.

Circulation, New York

2:161-320 (Aug.) 1950

*Blood Lipids and Human Atherosclerosis. J. W. Gofman, H. B. Jones, F. T. Lindgren and others.—p. 161.
Impending Hemorrhagic Shock and Course of Events Following Administration of Dibenamine. H. C. Wiggers, H. Goldberg, F. Roemhild and R. C. Ingraham.—p. 179.
Changes in Ballistocardiogram After Exercise in Normal and Abnormal Subjects. D. H. Makinson.—p. 186.
Electrokymograph: Studies in Recording Fidelity. H. F. Zinsser Jr., C. F. Kay and J. M. Benjamin Jr.—p. 197.
*Interrelationships of Serum Cholesterol, Cholesterol Esters and Phospholipids in Health and in Coronary Artery Disease. M. M. Gertler, S. M. Garn and J. Lerman.—p. 205.
Effects of Intravenous Aminophylline upon Coronary Blood-Oxygen Exchange. E. L. Foltz, A. Rubin, W. A. Steiger and P. C. Gazes.—p. 215.
Blood Vessels of Skin in Chronic Venous Insufficiency. M. H. Kulwin and E. A. Hines Jr.—p. 225.
Effect of Potassium and of Desoxycorticosterone Acetate in Acute Heart Injury in Rat. C. G. Campbell and S. M. Friedman.—p. 230.
Electrical Effects of Stimulating Endocardial Surface of Right Ventricle of Dog. A. M. Attyah.—p. 237.
Arrhythmias During Intracardiac Catheterization. J. Michel, A. D. Johnson, W. C. Bridges and others.—p. 240.
Ventricular Tachycardia During Cardiac Catheterization of Patient with Wolff-Parkinson-White Syndrome: Report of Case Showing Effects of Atropine Sulfate. R. A. Bruce, P. N. G. Yu, F. W. Lovejoy Jr. and others.—p. 245.
Electrokymographic Studies of Normal Cardiac Cycle. H. Mednick, J. B. Schwedel and P. Samet.—p. 250.
Abdominal Aortic Aneurysm: Study of One Hundred and Two Cases. J. E. Estes Jr.—p. 258.
Sodium Gentisate in Treatment of Acute Rheumatic Fever. L. E. Schaefer, I. A. Rashkoff and R. S. Megibow.—p. 265.
Studies on Blood Coagulation and Effect of Digitalis. G. C. Sutton.—p. 271.
Use of Digitalis in Spite of Presence of Ventricular Tachycardia. J. S. Gilson and F. R. Schemm.—p. 278.
Liver Function Tests in Chronic Congestive Heart Failure. L. Felder, A. Mund and J. G. Parker.—p. 286.
Pericardial Effusion Mistaken for Cardiac Enlargement in Severe Anemia: Report of Two Cases. L. A. Soloff and C. T. Bello.—p. 298.
Lodging of Embolus in Patent Foramen Ovale. F. J. Robinson.—p. 304.

Blood Lipids and Human Atherosclerosis.—Gofman and co-workers demonstrated with the aid of the analytic ultracentrifuge the presence of certain lipid and lipoprotein molecules in the serum of man and cholesterol-fed rabbits, associated with atherosclerosis in both species. This molecule did not represent any part of the acute alimentary lipemia. The presence of these cholesterol-bearing lipid and lipoprotein molecules could not be predicted from the analytic total serum cholesterol level. Partial dietary restriction of fat and cholesterol in man resulted in a gradual decrease in the serum level of such molecules over a period of weeks to months. These molecules were present with a much higher frequency and at higher concentrations in patients who had survived a myocardial infarction than in corresponding persons without known vascular disease. The presence of these molecules with increased frequency in other diseases associated with excessive atherosclerosis such as diabetes mellitus, the nephrotic syndrome, hypothyroidism, hypertension and coronary insufficiency supports the concept of their association with atherosclerosis.

Serum Cholesterol and Serum Phospholipids in Health and in Coronary Disease.—Gertler and co-workers determined serum levels of total cholesterol, cholesterol esters, free cholesterol and phospholipids in 97 men who had coronary heart disease prior to the age of 40, in 146 healthy nonhospitalized men of comparable age and in a group of 97 men each of whom matched one member of the coronary disease group in age, body build, weight, ancestry and occupation. The last group was included in order to determine to what extent these variables, rather than coronary heart disease itself, affected the serum lipids. The ratios of the various lipids were also determined for each person in each of the three groups. The coronary heart disease group exceeded the two control groups in values of serum cholesterol (total, free and esterified) and in serum phospholipids. The maximal difference was in the serum cholesterol ester, while the minimal difference was in the free cholesterol. Thus, the higher total serum cholesterol in coronary heart disease reflects the altered level of the esterified fraction. The ratio of total cholesterol to phospholipids also showed a pronounced difference between the coronary disease group and the two control groups, the mean ratio being 89 plus or minus 2, 74 plus or minus 0.9 and 78 plus or minus 1.3, respectively. The difference in the ratios of total cholesterol to phospholipids in the coronary disease group and the two healthy groups indicates a disturbance in the lipid interrelationships in coronary heart disease. This is suggestive of a disturbance in serum colloidal makeup in the coronary disease group.

GP (J. Am. Acad. of Gen. Practice), Kansas City, Mo.

2:1-120 (Aug.) 1950

Treating Common Skin Diseases. J. H. Stokes.—p. 32.
Lumps in the Breast. F. W. Hall.—p. 37.
What Can You Do for the Chronic? H. A. Rusk.—p. 42.
Streptomycin and the Multidose Injector. N. Steinberg.—p. 51.
Management of Hemorrhoids. H. E. Bacon and T. F. Moran.—p. 59.
What to Know About Asthma. F. M. Rackemann.—p. 61.

J. of American Med. Woman's Assn., Nashville, Tenn.

5:261-304 (July) 1950

Agglutination with Sensitized Sheep Cells in Rheumatoid Arthritis. N. Svartz.—p. 261.
*Female Infertility and Sterility: Endocrine Factors. R. S. Finkler and S. F. Becker.—p. 263.
Progress in Psychiatry. Z. Teplitz.—p. 269.

Endocrine Factors in Female Sterility.—Finkler and Becker maintain that in order to arrive at a diagnosis of functional sterility it is important to rule out organic disease not only in the female but in the male. Both husband and wife must undergo a thorough physical examination. The wife, in addition to a routine pelvic examination, must undergo a Rubin test or a salpingogram or both. The husband must have a urologic study and sperm analysis. After the husband is found fertile and the woman's pelvic organs are found to be normal, with the tubes patent and capable of normal peristalsis, the patient is subjected to further studies of endocrine function. The authors employ the following tests: (1) basal metabolic test, (2) blood studies for the determination of cholesterol and urea nitrogen, (3) dextrose and insulin tolerance tests, (4) endometrial biopsies (premenstrual or weekly), (5) vaginal smears, (6) hormonal assays of the urine for the excretion of pituitary gonadotropins, 17-ketosteroids and estrogens and (7) roentgenologic studies—skull, sella turcica, long bones, intravenous pyelography and perirenal insufflation with laminography when possible. The authors state that, in a series of 415 cases of female sterility, 160 were attributable to endocrine dysfunction. All the glands of internal secretion may be involved, and a detailed analysis will indicate the primary disturbance. Correction depends on diagnosis and appropriate therapy.

Journal of Clinical Investigation, Cincinnati

29:855-972 (July) 1950

Influence of Temperature upon Venous Pressure in Foot. J. P. Henry and O. H. Gauer.—p. 855.
Resistance to Small Doses of Insulin in Various Clinical Conditions. N. S. Olsen and J. A. Nuetzel.—p. 862.
Studies on Amino Acid Excretion in Man: IV. Peptic Ulcer. J. B. Kirsner, A. L. Sheffner, W. L. Palmer and K. Sterling.—p. 867.
Id.: V. Chronic Ulcerative Colitis and Regional Enteritis. J. B. Kirsner, A. L. Sheffner and W. L. Palmer.—p. 874.
Prothrombin Conversion Accelerator of Serum (APCA): Its Partial Purification and Its Properties Compared with Serum AC-Globulin. B. Alexander, R. Goldstein and G. Landwehr.—p. 881.
*Treatment of Nephrosis with Concentrated Human Serum Albumin: II. Effects on Renal Function and on Excretion of Water and Some Electrolytes. J. A. Luetscher Jr., A. D. Hall and V. L. Kremer.—p. 896.
Free Erythrocyte Protoporphyrin. E. Ward and H. L. Mason.—p. 905.
Effect of "Rice Diet" on Plasma Volume and Extracellular Fluid Space in Hypertensive Subjects. R. J. F. Murphy.—p. 912.
Effect of Diethylstilbestrol on Calcium, Phosphorus and Nitrogen Metabolism of Prostatic Carcinoma. A. Schilling and D. Laszlo.—p. 918.
Studies on VEM and VDM in Blood in Relation to Renal Hemodynamics and Renal Oxygen Extraction in Chronic Congestive Heart Failure. I. S. Edelman, B. W. Zweifach, D. J. W. Escher and others.—p. 925.
Example of Cellular Hyperosmolarity. L. G. Welt, J. Orloff, D. M. Kydd and J. E. Oltman.—p. 935.
Acute Circulatory Effects of Head-Down Position (Negative G) in Normal Man, with a Note on Some Measures Designed to Relieve Cranial Congestion in This Position. R. W. Wilkins, S. E. Bradley and C. K. Friedland.—p. 940.
Effect of Adrenocorticotropic Hormone in Panhypopituitarism. F. C. Bartter, P. Fourman, F. Albright and others.—p. 950.

Concentrated Human Serum Albumin in Nephrosis.—According to Luetscher and his associates administration of concentrated human serum albumin to patients with the nephrotic syndrome is followed by diuresis in approximately half the cases. They studied certain aspects of the renal control of sodium and water excretion. They found that administration of concentrated human serum albumin resulted in a diuresis which varied considerably in different patients and in the same patient on different occasions. Five of 13 patients lost all edema. The sequence of events after injection of albumin appears to be an increased colloid osmotic pressure of plasma, dilution of plasma with extracellular fluid to nearly the original plasma protein concentration, increased glomerular filtration rate, increased excretion of water and increase in serum sodium concentration. At this juncture, two possibilities exist: 1. If glomerular filtration is adequate, the renal tubules may reject some sodium. The amount of sodium appearing in the urine determines the subsequent diuresis and the increase in concentration of the plasma proteins. 2. No sodium is excreted, because of renal or adrenal factors. In this case the increased concentration of serum sodium apparently stops the water diuresis, and further treatment is ineffectual in relieving the edema or in significantly increasing the plasma protein concentration.

Journal of International College of Surgeons, Chicago

14:1-142 (July) 1950. **Partial Index**

Surgical Consideration of Intraspinal Tumors. A. W. Adson.—p. 1.
Surgery of Painful Kidney. O. S. Lowsley and W. H. Boyce Jr.—p. 12.
Clinical Course in 35 Cases of Renal Neoplasm. M. K. O'Hecron, J. L. Eidson and R. B. Dunham.—p. 24.
Complications in Urinary Tract Following Left Colonic Operations. G. H. Ewell.—p. 39.
Chronic Stenosing Tenovaginitis of Wrist. C. L. Hall and C. Berg.—p. 48.
Changing Concepts Concerning Diverticulitis. C. Rosser.—p. 52.
Lesions of Small Intestine. I. H. Lockwood and V. M. Lockard.—p. 57.
*Acute Peritonitis: Treatment of Pathologic Process and Its Immediate Aftermath: Further Experiences with Plication. T. B. Noble Jr.—p. 66.
Rupture of Pectoralis Major Muscle: Review of Literature and Report of Two Cases. W. M. Hayes.—p. 82.
Diagnosis of Carcinoma of Lung. G. P. Rosemond, W. E. Burnett and J. H. Hall.—p. 100.
New Repair for Umbilical Hernia. T. R. Hannon.—p. 103.
Roentgen Diagnosis of Subdiaphragmatic Abscess. P. S. Friedman.—p. 107.
Postoperative Psychosis. B. J. Ficarra and J. Lionello.—p. 111.
Fibrin Closure in Surgery of Eye. A. E. Town.—p. 114.
Value and Results of Combined Electrocoagulation and Radium Treatment in Cancer of Rectum. L. Schmidt.—p. 119.

Acute Peritonitis: Experience with Plication.—Noble reports on 50 patients who had advanced disseminated peritonitis before seeking relief. Multiple abscesses, multiple intestinal obstructions and damaged peritoneum were present in each of these patients. Each abscess along the intestine and its mesentery represents fixation of loops of the small bowel into a pocket of pus. Incorporated with the intestine may be mesentery of other loops, the large bowel or the omentum. Parts of the intestinal wall normally distant from each other are fused. Multiple partial obstructions are produced thereby, and increasing obstruction threatens. Fibrinous exudate develops into fibrin adhesions, which in turn fix the loops of intestine and, by a combination of cicatrization and edema, obstruct them. Partial obstructions cause accumulations of intestinal gas and fluid; these serve to increase the angulation and the tendency toward complete obstruction. A loop abnormally fixed in an abscess loses its peritoneum. Although the three factors are generally regarded as fatal, with proper treatment there is a chance for survival. The treatment comprises two parts: (1) resolution of the pathologic state, and (2) plication of the involved bowel to prevent recurrence. Every abscess must be resolved. Before the antibiotic drugs came into use, the author ignored infection and resolved such abscesses as a first step in the treatment of advanced peritonitis. He assumed that death from peritonitis resulted not from abscess but from intestinal obstruction. Time has proved this to be correct. Today antibiotics are used for added safety. The author begins dissection at the ileocecal junction. After the intestine has been completely liberated, plication is done. Plication was developed in 1920. More than 300 patients have been subjected to extensive plication after resolution of the causative pathologic process, with death in two. There was no need for further surgical treatment for adhesions or symptoms. Complete dissection of all intestine abnormally situated is the answer to the problem of acute disseminated peritonitis. Plication throughout all regions where there is damage to the peritoneum will prevent return of symptoms or destructive abnormalities.

Journal of Investigative Dermatology, Baltimore

15:1-68 (July) 1950

Treatment of Early Syphilis with Crystalline Penicillin G in Peanut Oil and Beeswax (P.O.B.) Employing Treatment Schedule of 300,000 Units Given Twice a Week for Period of 8 Weeks: Report of 113 Cases. N. Sobel, L. Chargin, C. R. Rein and T. Rosenthal.—p. 13.
Skin Reactions: XVII. Stability of Glycerite of Hydrogen Peroxide of Human Skin. H. A. Abramson.—p. 19.
Intercellular Substance of Connective Tissue in Myxedema: Morphological and Histochemical Study. G. Asboe-Hansen.—p. 25.
Composition of Surface Skin Fat ('Sebum') from Human Forearm. R. M. B. Mackenna, V. R. Wheatley and A. Wormall.—p. 33.
Basophilic Intranuclear Inclusions in Warts, Psoriasis, and Certain Malignancies. E. Meirowsky and L. W. Freeman.—p. 49.
Dihydrostreptomycin and Potassium Iodide in Treatment of Tuberculosis Verrucosa Cutis. H. M. Johnson.—p. 61.

Journal-Lancet, Minneapolis

70:241-278 (July) 1950

Coronary Artery Disease in Young Adults: Etiology and Pathogenesis. A. C. Grorud.—p. 241.
Role of X-Ray Therapy in Carcinoma of Breast. H. W. Stone and H. Vermund.—p. 247.
John Charnley McKinley—1891-1950. M. B. Visscher.—p. 250.
*Treatment of Congenital Clubfeet with Wedging Casts. G. M. Hart.—p. 252.
Recent Poliomyelitis Experience in Minnesota. D. S. Fleming.—p. 255.
Ophthalmic Headache: Differential Study. F. M. Walsh.—p. 259.
Preliminary Report of 20 Patients Treated with Δ5 Pregnenolone and Remissions in Rheumatoid Arthritis Following Gold Therapy. A. Cohen, J. Goldman, A. W. Dubbs and T. J. McBride.—p. 264.
Treatment of Pruritus Ani, Vulvae et Scroti. R. P. Lowenfish.—p. 266.
American College Health Association—Its Progress, Problems and Prospects. L. B. Chenoweth.—p. 267.

Treatment of Congenital Clubfoot.—According to Hart congenital clubfoot occurs about once in each 1,000 births. A hereditary background is ascertained in 5 to 45 per cent of the cases. There are four deformities present in congenital clubfoot: (1) adduction of the forefoot, (2) inversion of the hind foot, (3) equinus and (4) tibial torsion. The author states that most children with a congenital clubfoot deformity treated within the first six months of life can obtain a functionally normal foot by nonoperative treatment. Plaster casts are applied and wedged to correct the deformity, the forefoot adduction and inversion of the heel being corrected first and the equinus element last. The feet are then held in retention casts for eight to 12 weeks.

After removal of the casts follow-up treatment consisting of stretching exercises and clubfoot shoes is necessary. If the deformity recurs, it is immediately treated with a second series of casts and wedging. This method should be thoroughly applied before surgical measures are undertaken. It has been estimated that surgical measures are necessary in about 10 per cent of the cases.

Journal of the Mount Sinai Hospital, New York

17:79-148 (July-Aug.) 1950. **Partial Index**

Xanthomatoses. S. J. Thannhauser.—p. 79.
Hodgkin's Disease Localized to Anterior Mediastinum: Clinical, Roentgen and Surgical Considerations. E. Salzman.—p. 112.
Inspiratory Increase of Pulse Amplitude, Its Relation to Pulsus Paradoxus. M. C. Becker, D. S. Kent and I. G. Kroop.—p. 132.
Restored Viability of Implanted Preserved Necrocartilage in Rhinoplasty. I. B. Goldman.—p. 142.

J. Neuropathology & Exper. Neurology, Baltimore

9:219-352 (July) 1950

Post-Infectious Encephalomyelitis and Multiple Sclerosis: Significance of Perivenous Encephalomyelitis. L. van Bogaert.—p. 219.
Frontal Lobotomy: Neuroanatomical Observations. P. I. Yakovlev, H. Hamlin and W. H. Sweet.—p. 250.
Xanthomas of Choroid Plexus in Man. A. Wolf, D. Cowen and S. Graham.—p. 286.
Neuropathological Findings in Phenyl-Pyruvic Oligophrenia (Phenyl-Ketonuria). E. C. Alvord Jr., L. D. Stevenson, F. S. Vogel and R. L. Engle Jr.—p. 298.
Cerebral Contusion in Accidental Electrocution: Pathologic Study of Case. G. B. Hassin.—p. 311.
Primary Mesenchymal Tumors of Brain, So-Called Reticulum Cell Sarcoma: Report of 5 Cases. C. E. Troland, P. F. Sahyoun and F. B. Mandeville.—p. 322.
Changes in Arteriae Nervorum in Peripheral Nerve Injuries in Man. B. Woodhall and C. Davis Jr.—p. 335.
Uremia Encephalitis: Case Report. F. Y. Tichy.—p. 344.
Combined Staining of Iron and Fat in Frozen Sections. G. Strassmann.—p. 347.

Journal Pharmacology & Exper. Therap., Baltimore

99:277-394 (July) 1950. **Partial Index**

Effects of Epinephrine, Aminophylline, Nitroglycerine and Papaverine on Coronary Inflow and on Heart Contraction, as Recorded Concurrently. K. I. Melville and F. C. Lu.—p. 286.
Activity of Some Newer Spasmolytic Agents on Biliary Tract of Man: Comparative Study of Isopropyl-Norepinephrine, Adiphenine Hydrochloride, Methylamino-Iso-Octene and Khellin. E. A. Gaensler and J. M. McGowan.—p. 304.
Studies on Pharmacology and Toxicology of dl-a-1,3 Dimethyl-4-Phenyl-4-Propionoxy Piperidine (Nu-1196). C. M. Gruber Jr., Kwang Soo Lee and C. M. Gruber.—p. 312.
Effect of Some Anticonvulsant Agents upon Agene-Induced Convulsions in Dogs. J. Belford and D. D. Bonnycastle.—p. 325.
Metabolism of Myanesin (3-(O-Toloxy)-1,2-Propanediol). R. F. Riley.—p. 329.
Structure-Activity Relationships of Acetylcholine and Quaternary Ammonium Ions. J. H. Welsh and R. Taub.—p. 334.
Coronary Dilator Action: I. Quantitative Assay in Intact Dog. M. M. Winbury, P. M. Michiels, W. E. Hambourger and others.—p. 343.
d-Tubocurarine Chloride and Enzyme Activity. H. P. Jacobi, P. A. Stoesz and A. R. McIntyre.—p. 350.

Laryngoscope, St. Louis

60:601-726 (July) 1950. **Partial Index**

*Poliomyelitis-Tonsillectomy Survey—Year 1949. D. S. Cunning.—p. 615.
Further Observations of Effects of Thyroid Insufficiency on Nasal Mucosa. A. W. Proetz.—p. 627.
Treatment of Surgical Shock. W. G. Meals.—p. 634.
Allergy—Effective Treatments Used in Otolaryngology. M. F. Jones.—p. 644.
Recruitment of Loudness Phenomenon. E. P. Fowler.—p. 680.
Radiation Therapy of Cancer of Larynx. B. V. A. Low-Beer.—p. 696.

Poliomyelitis-Tonsillectomy Survey.—Cunning presents a statistical report which completes a four year nationwide survey conducted by the American Laryngological, Rhinological and Otological Society. This study is based on 36,678 cases of poliomyelitis and 96,379 cases of tonsillectomies. It failed to reveal any causal relationship between poliomyelitis and tonsillectomy. The studies did not indicate that tonsillectomy should be indefinitely postponed in the summer months simply because poliomyelitis is prevalent during this season. The author does not, however, advise operation during any epidemic, regardless of its nature.

Minnesota Medicine, St. Paul

33:657-752 (July) 1950

Emotional Problems of the Chronically Ill. G. Saslow.—p. 673.
Hemangiopericytoma: Unusual Extrarectal Tumor. H. E. Bacon, L. F. Sherman and W. N. Campbell.—p. 683.
Clinical Observations of Experiments of Nature. C. A. McKinlay.—p. 685.
Tuberculosis in Selectees Disqualified for Army 1942-1945: Record in Minnesota. W. J. Marcley.—p. 689.
Unusual Type of Pulmonary Disease Involving Six Members of Family. L. H. Rutledge.—p. 694.
Acute Inversion of Uterus: Report of Case. H. Shragg, M. Keil and J. Mikkelson.—p. 700.
Paroxysmal Tachycardia with Attacks of Unconsciousness: Report of Case. M. D. Mills and H. L. Smith.—p. 703.

New England Journal of Medicine, Boston

243:1-34 (July 6) 1950

Multiple-Balloon Kymographic Recording of Comparative Action of Oral Administration of Atropine, Tincture of Belladonna and Placebo on Motility of Upper Small Intestine in Man. W. P. Chapman, E. N. Rowlands and C. M. Jones.—p. 1.
Dermatologic Clues in Surgical Diagnosis. W. B. Shelley.—p. 8.
True Renal-Artery Aneurysm: Report of Case. R. R. Berneike and H. M. Pollock Jr.—p. 12.
Corrective Shoe for Toe Drop. C. A. Lamb.—p. 15.
Abdominal Surgery. A. W. Allen and C. E. Welch.—p. 16.

243:35-66 (July 13) 1950

Carcinoma of Lung: Necessity for Exploratory Thoracotomy After Negative Bronchoscopy. V. H. Kaunitz.—p. 35.
Today's Trends in Medical Education. D. O'Hara.—p. 40.
Treatment of Congestive Heart Failure in Ambulatory Patients with Salyrgan-Theophylline Administered Orally. J. Abramson, E. Bresnick and P. L. Sapienza.—p. 44.
*Bile Peritonitis Complicating Needle Biopsy of Liver. D. T. Gallison Jr. and D. Skinner.—p. 47.
Allergy. W. S. Burrage.—p. 50.

Bile Peritonitis Complicating Needle Biopsy.—Gallison and Skinner point out that aspiration or punch needle biopsy of the liver is not without danger. Seventeen deaths have resulted in about 4,900 cases, a mortality of about 0.35 per cent. Biliary fistula with bile peritonitis is a possible but hitherto unreported complication of punch needle biopsy of the liver. The authors illustrate this with a detailed case history. The possibility of the creation of a biliary fistula by penetration of a superficial bile duct should be considered when this diagnostic method is employed.

New Jersey Medical Society Journal, Trenton

47:311-360 (July) 1950

"Then Conquer We Must." R. I. Nevin.—p. 313.
Primary Carcinoma of Trachea Simulating Bronchial Asthma. J. D. Goldstein and R. Eisenstein.—p. 315.
Obstetrical Responsibility in Neonatal Deaths. A. Meurlin.—p. 318.
Significance of Rectal Bleeding. I. G. Larkey.—p. 322.
Malignancy of Thyroid. E. F. Sciorsci.—p. 324.
Hypersensitiveness to Insulin. J. Skwirsky.—p. 327.
Blood Procurement. C. A. Pons and S. C. de Pons.—p. 331.
Problem of Endometriosis. E. N. Bookrajian and R. Morrow.—p. 332.
Early Diagnosis of Carcinoma of Breast by Cytologic Technic with Report of Case. B. D. Jacobson.—p. 337.

New York State Journal of Medicine, New York

50:1313-1424 (June 1) 1950

Scapulocostal Syndrome (Fatigue-Postural Paradox). A. A. Michele, J. J. Davies, F. J. Krueger and J. M. Lichtor.—p. 1353.
Value of Special Auricular Lead in Electrocardiographic Diagnosis of Tachycardia. D. Appelman, M. Pomerance, E. Levine and M. Jacobi.—p. 1357.
Relative Merits of Commonly Used Sulfonamide Drugs as Components of Mixtures. D. Lehr.—p. 1361.
Atopic Nature of Amyotrophic Lateral Sclerosis: Evidence Afforded by Results with Adrenal Cortex Therapy. R. D. Barnard and S. Friedland.—p. 1365.
Malignant Melanoma in American Negro. H. Charache.—p. 1369.
Gastrostomy: Review of 46 Cases. D. Layall and H. J. Leider.—p. 1371.
Selective Differentiation of Blood Sera by Means of Transmitted Filtered Ultraviolet Light. L. Herly.—p. 1373.
Early Diagnosis of Uterine Cancer by Cytologic Technic as Office Procedure. G. H. Romberg.—p. 1375.
Gynecomastia in "Liver Dysfunction" Diabetes. L. Pelner and S. Waldman.—p. 1377.
Use of Curare in Facilitating Endotracheal Anesthesia and for Relief of Laryngospasm. J. Mascaro and H. F. Bishop.—p. 1381.
Symptomatic Treatment of Allergic Diseases with Chlor-Trimeton. J. Reicher and E. Schwartz.—p. 1383.
Use and Abuse of Sex Hormone Therapy in Obstetrics and Gynecology. L. Wilson.—p. 1386.

North Carolina Medical Journal, Winston-Salem

11:269-312 (June) 1950

Precancerous Dermatoses. S. F. Horne.—p. 269.
Advantages and Disadvantages of Caudal Analgesia: Experience in 2,000 Cases. A. T. Thorp.—p. 280.
Postpartum Sterilization. J. C. Tayloe.—p. 283.
Unilateral Twin Ectopic Pregnancy: Case Report. W. E. Miller and H. G. Reeves Jr.—p. 285.
Bulbo-Respiratory Poliomyelitis and Its Treatment. I. H. Rapp. —p. 287.
Diabetes as Public Health Problem. W. B. Hunter.—p. 289.
Meningocele Following Hemilaminectomy: Report of 2 Cases. H. Winkler and J. A. Powers.—p. 292.
Femoral Hernia Containing Strangulated Appendix Preoperatively Diagnosed as Metastatic Lymph Node. A. T. Hamilton and W. H. Wilson.—p. 295.

Ohio State Medical Journal, Columbus

46:629-756 (July) 1950

Foramen Magnum and High Cervical Cord Lesions Simulating Degenerative Disease of Nervous System. K. H. Abbott.—p. 645.
Emergency Management of Acute, Massive Upper Gastrointestinal Hemorrhage. S. O. Hoerr.—p. 652.
Clinical Significance and Management of Hypasthenic Patient. J. M. Hayman Jr.—p. 655.
*Contact Dermatitis Due to Cinnamon. F. W. Epstein.—p. 659.
Treatment of Thrombo-Embolic Disease. N. Fowler and J. McGuire. —p. 660.
Use of CO_2 in Inhalation Therapy. A. Shor.—p. 664.
Full-Term Intra-Abdominal Pregnancy. J. L. Reycraft, E. R. Hill and W. B. Crosley.—p. 66.
Hygiene of Pregnancy. R. E. Daly.—p. 668.

Contact Dermatitis Due to Cinnamon.—Epstein describes a woman, aged 59, who worked as a baker. She had a severe erythematopapular eruption of both hands. The fingers were swollen. Intermingled with acute vesicular lesions were chronic lichenified areas on the dorsum of both hands. The dermatitis was extremely pruritic and involved both wrists and forearms. The palmar aspects of the hands were also involved but to a lesser extent than their dorsal aspects. History revealed a chronic dermatitis of the dry eczema type of the hands for two years, with frequent remissions and exacerbations, the latter definitely tied up with longer hours at work and holiday baking. Patch tests with various substances revealed a hypersensitivity to cinnamon, although the ingestion of cinnamon caused no local or systemic reactions. Removal of the source of irritation was followed by recovery.

Pediatrics, Springfield, Ill.

6:1-172 (July) 1950

Endocrine Homeostasis in Clinical Pediatrics. N. B. Talbot.—p. 1.
Congenital Anomalies of Esophagus. W. E. Ladd.—p. 9.
Angiocardiography in Infants and Children: New Technic. J. D. Keith and J. D. Munn.—p. 20.
Recovery from Influenzal Meningitis Without Intrathecal Therapy in a Four Day Old Infant. J. Segal and F. S. Hill.—p. 33.
677 Congenitally Malformed Infants and Associated Gestational Characteristics: I. General Considerations. S. S. Stevenson, J. Worcester and R. G. Rice.—p. 37.
Favism in Two Children in California. A. H. Jacobs.—p. 51.
*Physiologic and Chemical Response of Premature Infants to Oxygen-Enriched Atmosphere. B. D. Graham, H. S. Reardon, J. L. Wilson and others.—p. 55.
Does Glutamic Acid Administration Influence Mental Function? H. G. Loeb and R. D. Tuddenham.—p. 72.
Postinfantile Cortical Hyperostosis with Subdural Hematoma: Report of Case and Review of Literature. B. H. Berrey.—p. 78.
Absorption of Fat and Vitamin A in Premature Infants: I. Effect of Different Levels of Fat Intake on Retention of Fat and Vitamin A. S. Morales, A. W. Chung, J. M. Lewis and others.—p. 86.
Determination of Oxygen Content of Capillary Blood in Congenital Heart Disease. H. N. Hultgren and A. J. Hackett.—p. 93.
Diastematomyelia (Congenital Clefts of Spinal Cord): Diagnosis and Surgical Treatment. D. D. Matson, R. P. Woods, J. B. Campbell and F. D. Ingraham.—p. 98.
Tularemia as Pediatric Problem. H. B. Levy, C. H. Webb and J. D. Wilkinson.—p. 113.
Hypercalcemia Nephropathy and Encephalopathy Following Immobilization: Case Report. K. Dodd, H. Graubarth and S. Rapoport.—p. 124.

Response of Premature Infants to Oxygen Enriched Atmosphere.—Graham and his associates studied the arterial blood in 44 premature infants while breathing atmospheric air or greater concentrations of oxygen. They analyzed the oxygen content, oxygen, capacity and hematocrit and made plethysmographic studies. They found that only 25 per cent of the premature infants breathed regularly in ordinary air; the remaining subjects breathed with some degree of periodicity (44 per cent) or complete irregularity (30 per cent). As the concentration of oxygen being breathed was raised, more of the group shifted to a regular type of respiration. In air containing 75 to 85 per cent of oxygen, 88 per cent of the premature infants breathed with a regular type of respiration. The oxygen saturation averaged 93 per cent in ordinary air, 96 per cent with up to 55 per cent of oxygen and 100 per cent when the oxygen was in excess of 70 per cent. A statistical analysis of the respiratory records revealed an average rise of 30 per cent in minute volume when 30 to 40 per cent of oxygen was administered, this rise being maintained as higher concentrations (to 90 per cent) of oxygen were administered. An average significant rise in respiratory rate of 30 per cent was noted when 30 to 40 per cent oxygen was administered, which slowly fell to the original rate level as oxygen administered was increased to 80 to 90 per cent concentration. The authors conclude from these observations that the majority of premature infants breathe, while in air, as if suffering from oxygen lack, yet they do not have a strikingly reduced arterial oxygen saturation. The administration of oxygen corrects this type of breathing and causes a relative hyperpnea and increased pulmonary ventilation.

Philippine Medical Association Journal, Manila

26:187-242 (May) 1950. **Partial Index**

Role of Radiology in Diagnosis and Treatment of Mediastinal Tumors. P. S Chikiamco and C. S. Chikiamco.—p. 193.
Practical Therapeusis in Pulmonary Tuberculosis. M. Quisumbing Sr. p. 203.
Early Syphilis in Manila. A. A. Lozano.—p. 213.

Proc. Soc. Exper. Biol. & Med., Utica, N. Y.

74:249-476 (June) 1950. **Partial Index**

*Absorption and Excretion of Terramycin in Humans: Comparison with Aureomycin and Chloramphenicol. C. A. Werner, V. Knight and W. McDermott.—p. 261.
Apparent Free Histidine Plasma and Urine Values in Rheumatoid Arthritis Treated with Cortisone and ACTH. C. A. L. Stephens Jr., E. B. Wallraff, A. L. Borden and others.—p. 275.
Role of Pituitary in Growth of Transplanted Rat Tumor. C. Funk, P. Tomashefsky, A. Ehrlich and R. Soukup.—p. 289.
Radioautography of Cerebral Tumors Employing P^{32}. D. Steinberg and B. Selverstone.—p. 304.
Estrogenic and Gonadotrophic Hormone Inhibiting Activity of Some Adrenal Cortical Substances. W. W. Byrnes and E. G. Shipley. —p. 308.
Measurement of Renal Hemodynamics in Man by "Slope Method" without Urinalysis. H. S. Tacket and C. R. Houck.—p. 317.
Increase in Serum Thyroxine During Uncomplicated Pregnancy. T. S. Danowski, R. C. Gow, F. M. Mateer and others.—p. 323.
Differentiation Between Bacterial and Tryptic Gelatin Liquefaction as Aid to Diagnosis of Fibrosis of Pancreas. D. E. Johnstone and E. Neter.—p. 326.
Eosinophil Response to Epinephrine and Nor-Epinephrine. P. C. Pellegrino, G. M. Morris and S. Trubowitz.—p. 330.
Sex Difference in Response of Rats to Sodium Pentobarbital. L. W. Jarcho, C. Eyzaguirre and J. L. Lilienthal Jr.—p. 332.
*Use of Cortisone and ACTH in Rheumatoid Diseases in Swine. L. P. Doyle, F. N. Andrews and L. M. Hutchings.—p. 373.
Mechanism of Increased Susceptibility to Ergot Gangrene in Thyrotoxicosis. J. A. Wells and L. H. Anderson.—p. 374.
Cardiovascular Changes Induced by Rapid Expansion of Extracellular Fluid. L. G. Raisz, W. P. Anslow Jr. and L. G. Wesson Jr.—p. 401.
Mechanism of Action of Aminopterin. C. A. Nichol and A. D. Welch. —p. 403.
Diabetes-Insipidus-Like Condition Produced in Dogs by Potassium Deficient Diet. S. G. Smith and T. E. Lasater.—p. 427.
Lymphocytic Response of Normal Individuals to Transient Hyper- and Hypoglycemia. S. S. Lazarus, B. W. Volk, M. Jacobi and M. Zymaris. —p. 432.
Pituitary Basophile Hyperplasia and Crooke's Hyaline Changes in Man After ACTH Therapy. A. Golden, P. K. Bondy and W. H. Sheldon. —p. 455.

Terramycin: Comparison with Aureomycin and Chloramphenicol.—Werner and his associates studied the absorption, distribution and urinary excretion of terramycin, aureomycin, and chloramphenicol in humans. All three drugs were readily absorbed after oral administration. The maximum serum concentrations attained after oral doses of 50 mg. per kilogram were 25 to 50 micrograms per cubic centimeter for chloramphenicol, 12 to 16 micrograms per cubic centimeter for terramycin and 3.3 to 12.5 micrograms per cubic centimeter for aureomycin. Measurable concentrations of the compounds were obtained in the cerebrospinal fluid and in other body fluids when sufficiently

large doses of the drugs had been administered. Urinary excretion of the three substances in biologically active form was similar, and high concentrations of drug were attained in the urine. The authors admit that studies of the concentrations of an antimicrobial drug which are attained in the blood may bear only a loose relationship to the therapeutic results which will be achieved with that drug. Nevertheless, the results of such studies can serve as a guide to the dosage regimens. The persistence of measurable serum concentrations of terramycin for six hours and longer after single doses and the high serum concentrations attained when 1 to 1.25 Gm. maintenance doses of drug were given at six hour intervals indicate that total daily oral doses of 4 to 5 Gm. will provide satisfactory drug concentrations in the body in terms of the in vitro sensitivities of the various micro-organisms against which terramycin has been demonstrated to be effective.

Rheumatoid Disease in Swine: Effect of Cortisone and ACTH.—Doyle and his associates state that conditions occur in swine which bear considerable resemblance to rheumatic or rheumatoid diseases in human subjects. Some naturally affected swine showed definite improvement following treatment with cortisone and also with pituitary adrenocorticotropic hormone. More work needs to be done before conclusions can be drawn as to how closely analogous are the rheumatoid conditions in swine and in humans.

74:477-658 (July) 1950. Partial Index

Potassium Uptake of Normal and Low Potassium Human Red Corpuscles. H. G. Davidsen and K. Kjerulf-Jensen.—p. 477.
*In Vitro Sensitivity of Bacteria to Sulfonamide Combinations as Compared to Single Sulfonamides. F. B. Schweinburg and A. M. Rutenburg.—p. 480.
Polysaccharides in Ulcerative Colitis and Normal Human Rectum Compared by Stains of Biopsy Specimens. H. C. Marshall, R. B. Stoughton and J. B. Kirsner.—p. 498.
Metabolism and Excretion of Estrone Sulfate Labeled with Radioactive Sulfur (S^{35}). M. E. Davis, F. E. Kelsey, N. W. Fugo and others.—p. 501.
Antibiotic Studies on Beta Hemolytic Streptococci: VII. Acquired In Vitro Resistance to Bacitracin. H. M. Gezon, D. M. Fasan and G. R. Collins.—p. 505.
Cultivation of Coxsackie Virus. E. A. Slater and J. T. Syverton.—p. 509.
Virus Interference by Serially Passed Hodgkin's Disease Extracts in Chicken Eggs. W. L. Bostick.—p. 519.
Effects of B-Diethylaminoethyl Xanthene 9-Carboxylate Methobromide (Banthine) on Human Gastrointestinal Function. R. L. Walters, J. A. Morgan and J. M. Beal.—p. 526.
Formation of Neutralizing Antibody in Monkeys Injected with Poliomyelitis Virus and Adjuvants. R. Ward, D. Rader, M. M. Lipton and J. Freund.—p. 536.
Diurnal Variations of Renal Function in Congestive Heart Failure. D. S. Baldwin, J. H. Sirota and H. Villarreal.—p. 578.
*Effects of Prolonged Exposure to Cold on Vitamin A Requirement of Rat. B. H. Ershoff.—p. 586.
Diabetic State with Lipaemia and Hydropic Changes in Pancreas Produced in Rabbits by Cortisone. S. D. Kobernick and R. H. More.—p. 602.
Rapid Method for Detection of Influenza Virus During Epidemics. S. S. Kalter.—p. 607.
Influence of Sex Hormones on Tolerance to Aminopterin. S. Weintraub, S. D. Kraus and L. T. Wright.—p. 609.
Inhibition of Phagocytic Action of Leucocytes by Mumps and Influenza Viruses. D. J. Merchant and H. R. Morgan.—p. 651.

Bacterial Sensitivity to Sulfonamide Combinations.—In order to obtain information about the therapeutic advantages of mixtures of several sulfonamides over a single sulfonamide, Schweinburg and Rutenbrug made in vitro studies on 70 bacterial strains with the following sulfonamides: sulfadiazine, sulfamerazine, sulfamethazine and sulfathiazole. The sulfonamides were used singly or combined. The authors conclude that the use of sulfonamide mixtures in preference to a single effective sulfonamide is justified only when in vitro sensitivity tests demonstrate for the components of the mixture either an additive or a potentiating effect. Such tests suggest that this is likely to be true in the majority of coccic infections, but not for gram-negative bacillary infections.

Exposure to Cold and Vitamin A Requirement.—Ershoff says that available data indicate that requirements for a number of nutrients are greatly increased under conditions of low environmental temperature. This is particularly true for some of the water-soluble vitamins. An increased requirement for thiamine, pyridoxine and ascorbic acid has been demonstrated after prolonged exposure to low environmental temperatures. Data are presented on the effects of low environmental temperature on the vitamin A requirement of the rat. Animals were fed purified rations deficient in vitamin A, and their rate of depletion and length of survival were determined under cold room (2 C. or 35.6 F.) and under room temperature (23 C. or 73.4 F.) conditions. It was found that (1) rats were depleted more rapidly under cold room conditions, (2) body weight at the time of depletion was less in the cold room than in the room temperature series and (3) length of survival after depletion was significantly decreased in the cold room series.

Psychiatric Quarterly, Utica, N. Y.

24:437-644 (July) 1950. Partial Index

Time of Decision. S. G. Rogg.—p. 437.
Quo Vadis, Psychiatry? Our Profession at the Crossroads. L. G. Lowrey.—p. 448.
Low-Cost Psychoanalytic Service: First Year. R. M. Crowley.—p. 462.
Psychology of Hypnotist. S. S. Pardell.—p. 483.
Brief Shock Therapy—Adjuvant to Psychotherapy. L. Linn and S. R. Rosen.—p. 506.
Etiology of Schizophrenia. A. J. Schulman.—p. 515.
Transference in Psychotherapy. S. R. Lehrman.—p. 532.

Public Health Reports, Washington, D. C.

65:851-874 (July 7) 1950

Survival of Tubercle Bacilli in Various Sewage Treatment Processes: I. Development of Method for Quantitative Recovery of Mycobacteria from Sewage. D. Pramer, H. Heukelekian and R. A. Ragotzkie.—p. 851.
*Protecting Photofluorographic Personnel from Excessive Radiation. W. W. Van Allen.—p. 865.

65:875-902 (July 14) 1950

Influence of Type and Concentration of Antitoxin on in Vitro Toxigenicity Test for C. Diphtheriae. V. J. Freeman.—p. 875.
Study of Certain Factors Affecting Agglutination Test for Brucellosis. J. H. Schubert and J. F. Herndon.—p. 883.
Stability of Rh Factor in Mailed Samples. C. I. Argall.—p. 890.

65:903-930 (July 21) 1950

Child Health Services in Twelve Metropolitan Districts. M. Y. Pennell, K. Bain and J. P. Hubbard.—p. 903.
School Lunches from a Health Standpoint. R. E. Butler.—p. 919.

Protecting Photofluorographic Personnel from Excessive Radiation.—According to Van Allen the quantity of radiation required for a photofluorographic exposure is several times that used for a conventional radiograph. Also, it is not unusual for a single photofluorographic machine to produce over 500 exposures per day and to operate at this rate for many consecutive days. With this combination of a great number of exposures and high radiation requirements for each exposure, the amount of secondary radiation in the vicinity of the equipment is far greater than that encountered in large-film work. Furthermore, most photofluorographic equipment is portable, semiportable, or mounted in mobile trucks, and operating space is usually limited. Consequently, it is not always possible to employ the same protective measures which apply readily to permanent installations. The Electronics Laboratory has undertaken two investigations to find procedures giving maximum protection to photofluorographic personnel. These are (1) the continuous monitoring of the amount of radiation actually received by its personnel each week and (2) the study of radiation fields surrounding photofluorographic installations. Each employee is given a plastic badge containing a dental film packet and required to wear the badge for one week while on duty. At the end of each week the badges are returned to the laboratory and the radiation received is determined from the density of the developed image. The results of the first five weeks of monitoring show what improvement can be made in only a short time through the conscientious observation of safety rules. At the start of the check, 20 per cent of the technicians received radiation in excess of 300 milliroentgens per week, which is considered the limit of allowable radiation. As a result of follow-up procedures, the majority of technicians succeeded in reducing their radiation dosage to less than one-sixth the accepted limit of 300 milliroentgens per week. The study of fields of secondary radiation surrounding two types of fluorographic installations provided answers to some questions about safe operating practice.

Puerto Rico J. Pub. Health & Trop. Med., San Juan

25:359-520 (June) 1950. **Partial Index**

Outbreak of Influenza Due to Type A-Prime Virus at Coamo, Puerto Rico. J. Enrique Pérez and G. Arbona.—p. 377.
Studies on Manson's Schistosomiasis in Puerto Rico: I. Result of Control Methods in Endemic Area. J. Oliver González, N. Biaggi, C. Acevedo and others.—p. 387.
Treatment of Amoebiasis with Milibis (Bismuthoxy-para-N-glycolylarsanilate): Preliminary Report. E. Pérez Santiago and F. Hernández Morales.—p. 419.

Review of Gastroenterology, New York

17:525-624 (July) 1950

Present Status of Treatment of Cirrhosis of Liver. C. S. Keefer.—p. 533.
Thoughts upon Diabetes Today. E. P. Joslin.—p. 545.
Antibiotics in Gastrointestinal Diseases. M. Finland and E. B. Wells.—p. 558.
Recurrent Inguinal Hernia. R. T. Doyle.—p. 563.
Acute Perforated Peptic Ulcer. C. G. Shedd and I. Schwartz.—p. 568.
Surgical Aspects of Diverticulitis of Sigmoid. J. E. Flynn.—p. 577.
Diaphragmatic Hernia with Report of Case. R. Upham.—p. 586.
Treatment of Giardiasis by Chloroguanide Chlorhydrate. A. A. Plata.—p. 598.
Corticodiencephalic Gastrointestinal Syndromes in Epileptics: Part VII. T. S. P. Fitch, A. W. Pigott and S. M. Weingrow.—p. 602.

Rocky Mountain Medical Journal, Denver

47:485-560 (July) 1950

Advances in Research on Poliomyelitis. H. A. Wenner.—p. 504.
Alcoholism and the Public. R. Kieve.—p. 510.
The National Health Service of Great Britain. L. Florio.—p. 513.
Stricture of Urethra. E. Hess, A. F. Kaminsky and R. B. Roth.—p. 519.
Management and Treatment of Incipient Tuberculosis. J. I. Zarit.—p. 522.
"Effort" Thrombosis of Axillary Vein. J. L. Glaser.—p. 523.
Ventricular Paroxysmal Tachycardia: Two Unusual Cases. W. C. Snow.—p. 525.

Southern Surgeon, Atlanta, Ga.

16:627-726 (July) 1950

*Prolapsed Gastric Mucosa. W. J. Clifford, A. M. McCallen, and H. W. Keschner.—p. 627.
Polypoid Lesions of Colon. W. C. Bartlett.—p. 635.
Results of Arterial Spasm. J. A. Kirtley Jr.—p. 745.
Diseases of Biliary Tract Associated with Cholelithiasis. F. T. Wallace and E. M. Colvin.—p. 655.
Duplication of Cecum (Enteric Cyst): Report of Case. C. A. Kunath, L. R. Hershberger and F. M. Spencer.—p. 662.
Spinal Anesthesia and Some of Its Modern Aspects. H. S. Phillips.—p. 668.
Changes in Extracellular Fluid and Cardiac. C. Handley, H. Huggins and E. Hay.—p. 673.
Bone Diseases with Osteoporotic or Malacic Changes. M. M. Copeland.—p. 677.
Ligation of Larger Venous Channels. J. D. Hancock.—p. 704.

Prolapsed Gastric Mucosa.—Clifford and his associates mention the following chief symptoms of prolapsed gastric mucosa: vague epigastric discomfort, severe episodic pain, vomiting, hematemesis and/or melena and loss of weight. The fluoroscopic appearance and roentgenograms are characteristic, showing the mushrooming or cauliflower effect of gastric mucosa in the first portion of the duodenum. The authors present an illustrating case history. Symptoms in this case were the result of a true prolapse through the pylorus into the duodenum. In other instances the complaint may be the result of a valvelike action of a transverse fold of mucous membrane intermittently closing off the pyloric exit of the stomach. It would seem that "relaxed gastric mucosa" is a preferable general term, whereas "prolapsed gastric mucosa" should be restricted to cases such as the one presented here, in which an actual extrusion of mucosa into the duodenum is demonstrated. The authors feel that in patients with prolapse of the gastric mucosa medical therapy should be tried first. If such a regimen does not effect the patient's return to active life without rigid adherence to a limited diet and antispasmodics, surgical treatment should be advised. In the past, procedures have ranged from gastrotomy, excision of the mucosa with suture of the remaining mucosa to the underlying muscular layer, through pyloroplasty and gastroenterostomy to gastric resection. This condition is progressive. The existing lesion must be treated, and steps must be taken to prevent recurrence. A subtotal gastrectomy, with a preliminary duodenotomy to confirm the diagnosis, seems to be the treatment of choice.

Surgery, St. Louis

28:1-160 (July) 1950. **Partial Index**

Resistance of Explanted Gastric Mucosa to Various Chemical and Physical Agents. J. R. Miller, J. F. Herrick, F. C. Mann and others.—p. 1.
Extent to Which One May Interfere with Blood Supply of Esophagus and Obtain Healing on Anastomosis. J. E. Macmanus, J. T. Dameron and J. R. Paine.—p. 11.
*Studies on Antithrombin: III. Plasma Antithrombin Test for Prediction of Intravascular Clotting. J. H. Kay, S. B. Hutton Jr., G. N. Weiss and A. Ochsner.—p. 24.
Experimental Study of Regional Heparinization. E. J. Wylie, R. E. Gardner, R. Johansen and J. H. McCorkle.—p. 29.
Saphenous Neurectomy in Treatment of Selected Cases of Painful Ulceration of Leg. L. N. Atlas.—p. 37.
Rupture of Bowel in Newborn Infant: Including Case Report of Rupture in Large Intestine with Recovery. C. M. Lee Jr. and B. G. MacMillan.—p. 48.
*Cure of Hypertension by Nephrectomy: Ten-Year Follow-Up of Case. C. E. Burkland, W. E. Goodwin and W. F. Leadbetter.—p. 67.
*Wringer Injury. P. F. Hausmann and H. H. Everett.—p. 71.
Eosinophil Response to Surgical Trauma. W. R. Coppinger and M. G. Goldner.—p. 75.
Immediate and Late Results of Surgical Therapy of Acute Perforated Gastric and Duodenal Ulcer. H. W. Mayo Jr. and C. W. Fitchett.—p. 82.
Acute Intestinal Obstruction: Comparative Studies of Small Intestinal and Colic Obstruction. M. L. Michel Jr., L. Knapp and A. Davidson.—p. 90.

Plasma Antithrombin and Intravascular Clotting.—This report by Kay and his associates is the third one on an antithrombin. They show that alpha tocopherol, which is a potent inhibitor of thrombin, occurs in the accelerator globulin fraction of plasma and in Cohn's fraction I. When antithrombin in this form is combined with fibrinogen and thrombin in optimum quantities, a substance is formed which is chemically indistinguishable from fibrinogen B. Studies with both substances indicate that they are identical. Determinations of the plasma antithrombin levels in clinical subjects subjected to major operations suggest that thrombosis is likely to occur in the postoperative period when the plasma antithrombin level is abnormally low while at the same time the prothrombin conversion rate is at, or near, normal. Studies in a small group of patients suggest that the antithrombin level can be raised by the oral administration of alpha tocopherol and the intravenous administration of calcium gluconate. The use of plasma antithrombin determinations to identify patients in whom intravascular clotting may be expected to occur would place on hospital laboratory facilities a burden out of proportion to the clinical value of the method. To identify the patients in this category (not more than one-half the small number with low values who simultaneously show a normal prothrombin time), it would be necessary postoperatively to perform both tests every day for at least five days on all patients. From this standpoint, the work which has been reported in this communication is chiefly of theoretical value. These studies give rise to the hope that routine administration of alpha tocopherol and calcium in the postoperative period may eventually prove to be the means of eliminating intravascular clotting as a postoperative complication.

Cure of Hypertension by Nephrectomy.—Burkland, Goodwin and Leadbetter report a 10 year follow-up of a patient who was treated by nephrectomy for hypertension in January 1938 and whose blood pressure has been normal since then. The patient was a boy in whom hypertension had been present from the age of six months. Studies at the age of three years disclosed an ectopic pelvic kidney on the right side. In December 1937, urologic studies revealed poor function in the ectopic kidney. A right nephrectomy was performed in January 1938, when the patient was five and a half years old. The blood pressure before operation averaged 155/105; one year after operation it was 120/75, and 10½ years after operation 136/80 in the right arm and 130/76 in the left arm. He has grown normally with no symptoms or signs of cardiac or renal disease. Review of the literature reveals only a few patients cured or benefited by nephrectomy for unilateral renal disease, because there are not many cases with unilateral interference of the renal circulation or they are not discovered early enough for a good result from surgical intervention.

Wringer Injury.—Hausmann and Everett believe that the subject of wringer injury or of wringer arm has been neglected. Often the treatment used is inadequate or even damaging. The authors describe observations on 97 patients with wringer injury

treated at the Milwaukee Children's Hospital. Forty-five of the patients (1935-1941) were treated by methods which consisted of many of the following practices: hot compresses, multiple incisions, aspirations, cold packs and sodium hypochlorite (Dakin's) solution irrigations. Many of these methods are now considered bad surgical technic. Especially bad is the application of hot compresses. In 1942 the treatment of wringer injury was standardized. On admission of the patient roentgenographic examination is done in order to rule out fractures. If they are present, reduction is accomplished. The injured extremity is cleansed, and superficial and deep lacerations are repaired. Large hematomas are evacuated by aseptic aspiration. Sterile nitrofurazone or petrolatum strips are applied lengthwise (not circularly) on the abrasions and repaired lacerations. A pressure dressing is wound about the extremity so as to extend from the finger tips to well above the site of injury. The outer layer of the dressing consists of rolled cotton elastic (not rubberized) bandage. The finger tips are left exposed to enable the physician to observe the circulatory status of the extremity. Several layers of gauze are interposed between the fingers to avoid skin to skin contact. The forearm and arm, after the application of the pressure dressing, are elevated and surrounded with ice packs. Procaine penicillin (400,000 units) is given daily. Additional supportive therapy may include whole blood transfusions. At times tetanus antitoxin may be indicated. The use of pressure dressings and antibiotics has given superior results; it has not been necessary to apply skin grafts in as many cases, and the number of days of hospitalization has been reduced. In a comparison of the average length of hospitalization for the two periods, it is obvious that a decided improvement has followed the adoption of the pressure dressing technic.

Surgery, Gynecology and Obstetrics, Chicago

91:1-128 (July) 1950

Contractility of Human Uterus Recorded by New Methods. H. Alvarez and R. Caldeyro.—p. 1.
Intertrochanteric Fractures of Femur: Analysis of End Results of 126 Fractures Treated by Various Methods. W. H. Bickel and A. E. Jackson.—p. 14.
*Experience with Operative Management of 280 Strictures of Bile Ducts; with Description of New Method and Complete Follow-Up Study of End Results in 229 of Cases. F. H. Lahey and L. J. Pyrtek.—p. 25.
Vaginal Hysterectomy. R. N. Rutherford.—p. 57.
Localized Paralytic Ileus: Early Roentgen Sign of Acute Pancreatitis. A. I. Grollman, S. Goodman and A. Fine.—p. 65.
Surgical Complications of Congenital Anomalies of Umbilical Region. E. E. Arnheim.—p. 71.
Pneumothorax and Mediastinal Emphysema Complicating Neck Surgery. L. Bowden and O. Schweizer.—p. 81.
Cystic Hemangioblastomas of Cerebellum: End Results in 25 Verified Cases. I. Perlmutter, G. Horrax and J. L. Poppen.—p. 89.
Evaluation of pHisoderm G-11 and Liquid Soap Containing G-11 When Used as Preoperative Scrub. J. A. Dull, H. A. Zintel, H. L. Ellis and A. Nichols.—p. 100.
Nonpenetrating Abdominal Injury. H. A. Burnett and C. M. O'Leary. —p. 105.

Operative Management of Strictures of Bile Ducts.—According to Lahey and Pyrtek duct injuries in the course of operations on the gallbladder and bile ducts are the result of three types of accidents: (1) hemorrhage from the cystic or hepatic arteries, (2) confusion concerning the anatomy at the junction of the cystic, common and hepatic ducts or (3) the presence of anomalous ducts or vessels causing uncertainty concerning the anatomic relationships between the ducts and the vessels in this region. The authors operated on many patients with injuries and strictures of the bile ducts after they had three to eight previous attempts at repair. With each unsuccessful attempt the chances for a satisfactory outcome diminish. The authors cite three patients whose condition appeared hopeless but who have obtained satisfactory results despite many previous operations. In presenting their follow-up data on 229 repaired bile ducts, the authors group the patients into those treated between 1917 and 1939 and those treated since then. From 1917 to 1939 a number of external biliary fistulas were transplanted and attempts were made to bridge duct defects with rubber tubing. These patients did not have the benefit of vitamin K, and the authors did not have as good an understanding of the importance of preparing a badly damaged liver for operation as they have now. The potent antibiotics were not available. These factors account for an operative mortality of 22 per cent. The three main causes of postoperative deaths in this early group were hemorrhage, hepatic failure and peritonitis. During the period 1940 to 1948 the following principles of bile duct reconstruction were applied: (1) direct duct end to end anastomosis with a T tube implanted through a separate opening in the bile duct, (2) dissection of the intrapancreatic portion of the common duct, mobilization of the duodenum and end to end anastomosis of the ducts, (3) application of the Mikulicz principle by suturing the right and left hepatic ducts together and incising the sutured common wall between the two ducts, thus creating a single lumen which could be anastomosed to the distal segment of the duct, and (4) employment of vitallium and "bouncing clay" (silicon) in reconstructive surgery of the bile ducts and direct anastomosis of the hepatic duct to the jejunum. There were 12 postoperative deaths (6.5 per cent). There were 273 operative procedures in 195 patients, with a procedure mortality of 4.4 per cent. Of the 169 patients who could be followed, 138 had an excellent or good result (81 per cent). The authors feel that the principle of reestablishing bile duct continuity by end to end anastomosis, thus preserving the sphincter of Oddi, is a sound one. In most patients it is feasible for one to isolate uninjured segments of the common duct by finding the intrapancreatic portion of the duct and thereby accomplishing end to end anastomosis with good results. Anastomoses of the stump of the hepatic duct to the jejunum may be accomplished in patients in whom an end to end anastomosis is not feasible. This study demonstrated that it is not wise to bridge duct defects by a tube to preserve the continuity of the bile ducts.

U. S. Armed Forces Med. Jour., Washington, D. C.

1:719-836 (July) 1950. **Partial Index**

Tumors of Testes: Five-Year Follow-Up Study. H. V. O-Connell and C. F. Geschickter.—p. 719.
Torsion of Spermatic Cord. G. R. Hamilton, A. B. Peyton and L. K. Mantell.—p. 733.
Primary Bronchogenic Carcinoma. J. H. Forsee, J. M. Salyer and R. T. Gants.—p. 738.
Ante-Mortem Diagnosis of Secondary Tumors of Heart: Report of Four Cases. R. M. Dimmette.—p. 750.
Idiopathic Thrombocytopenic Purpura: Splenectomy and Toluidine Blue in Treatment. M. T. Yates.—p. 759.
Bilateral Circumscribed Pretibial Myxedema: Report of Case. A. R. Errion.—p. 767.
Syndrome of Circumoral Pigmentation Associated with Generalized Intestinal Polyposis: Report of Case. B. F. Perry and J. J. Zuska. —p. 773.
Cutaneous Diphtheria. L. M. Bernstein, R. M. Williams and F. G. Novy. —p. 778.
*Glanders. R. W. Mendelson.—p. 781.
Foot-and-Mouth Disease in Mexico. T. G. Murnane.—p. 785.
Bony Lesions Occurring During Early Stages of Syphilis: Report of Case. J. H. Cox.—p. 788.
Fractures of Mandibular Condyle: Report of Eight Cases. C. Fastiggi. —p. 797.
Toxicity of Intrathecal Penicillin. W. M. Edwards and D. C. Kellsey. —p. 806.
Method for Testing Sensitivity of Organisms to Antibiotics. J. P. Ransom.—p. 818.

Glanders.—Mendelson defines glanders as an acute infectious disease of equines, which is caused by Malleomyces mallei and is characterized by ulcerating granulomatous lesions of the skin, subcutaneous tissues and mucous membranes. In humans it is frequently fatal and often difficult to diagnose. The protean manifestations in both the acute and chronic stages may suggest a number of other clinical conditions. A history of contact with horses, mules or donkeys is highly suggestive in a patient exhibiting an ulcerative, granulomatous lesion, particularly of the nose. Syphilis, tuberculosis, epithelioma and/or a variety of other diseases, including granuloma inguinale, lymphogranuloma inguinale and mycotic lesions, must be ruled out. The author presents the history of four patients, each of whom had been in close contact with either horses or donkeys, and in every case except one the animals had died of an unknown disease. The prognosis is not good; the author knows of no specific treatment. Vaccine treatment in one case appeared to be of value; however, one should be cautious in pronouncing a cure as latency is characteristic of the disease. The nasal passages appear to be the portal of entry for the infection, although in one of the reported cases the eye was apparently the site of the primary lesion.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2:61-122 (July 8) 1950

Tuberculosis Service in Scotland. Report by a Scottish Committee. —p. 61
Treatment of Painful Amputation Stumps. W. R. Russell and J. M. K. Spalding.—p. 68.
P.T.A.P.: Determination of Essential Lf Dosage. G. Bousfield and L. B. Holt.—p. 73.
Ill Effects of Radium Menopause. H. C. McLaren.—p. 76.
Observations on Treatment of Thyrotoxicosis. I. Murray.—p. 80.
Body Weight in Graves's Disease. H. Conway.—p. 84.
Treatment of Simple Epithelial Cysts with Secondary Photo-Electron Radiation: Preliminary Report. L. Cohen and S. A. Kimmel.—p. 87.

2:123-178 (July 15) 1950

2,665 Cases of Abortion: Clinical Survey. A. Davis.—p. 123.
Habitual Abortion: Prophylactic Value of Progesterone Pellet Implantation. P. M. F. Bishop and N. A. Richards.—p. 130.
Haematemesis and Melaena. C. D. Needham and J. A. McConachie. —p. 133.
Haemorrhage from Peptic Ulcer: Report on 170 Cases. A. G. Ogilvie and I. O. B. Spencer.—p. 138.
Value of Tuberculin-Jelly Test. W. P. Dick.—p. 141.
Dietary Treatment of Hypertension. H. Ueko.—p. 144.
*Effect of Vitamin B_{12} on Neuropathy in Pernicious Anaemia Treated with Folic Acid. H. Fuld.—p. 147.

Vitamin B_{12} for Neuropathy in Pernicious Anemia.—Fuld presents the case of a woman, aged 74, in whom pernicious anemia had been diagnosed three years previously. Injections of concentrated liver extract caused a dermatitis. The injections were stopped, and the patient was given 15 mg. of folic acid daily. After 15 months of treatment with folic acid, she complained of weakness and unsteadiness of legs and loss of appetite. Her diet became inadequate, and she became mentally deranged and bedridden. Examination showed gross ataxia, brisk tendon reflexes, Hoffmann's sign on the left side, impaired superficial sensation, loss of joint and vibration sense and of the abdominal reflexes. A diagnosis of neuropathy was made following folic acid treatment of pernicious anemia in a woman who also suffered from nutritional (vitamin B) deficiency. She was given injections of vitamin B_{12} first at three days, then at five, then at seven and finally at fortnightly intervals. This treatment resulted in complete and rapid restitution.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

57:317-524 (July) 1950. **Partial Index**

Aspects of Chorion Epithelioma. A. Brews.—p. 317.
Role of Tumour Bed in Treatment of Squamous-Cell Cancers by Irradiation. A. Glucksmann.—p. 322.
Pathology of Malignant Ovarian Tumours. C. W. Taylor.—p. 328.
Extent of Breast Feeding in Great Britain in 1946, with Special Reference to Health and Survival of Children. J. W. B. Douglas.—p. 335.
Ovarian Theca Cell. S. Shippel.—p. 362.
Structure of Human Placenta with Full-Time and Immature Foetus, Living or Dead. S. Getzowa and A. Sadowsky.—p. 388.
Report on 1,051 Consecutive Cases of Abdominal Hysterectomy in Which Technique Using Continuous Suture Only Was Used in Securing Pedicles. K. F. Mackenzie.—p. 397.
Round Ligament Sling Operation for Stress Incontinence. H. H. F. Barns.—p. 404.
Case of Cystadenofibroma of Ovary. D. Daley, C. V. Harrison and W. G. Millar.—p. 408.
Future in Treatment of Carcinoma of Cervix. M. Donaldson.—p. 411.
*Outbreak of Pemphigus Neonatorum in Maternity Department of General Hospital: With Special Reference to Source of Infection. A. A. Miller. —p. 415.
Primary Rupture of Upper Membranes in Twin Labour. F. H. Finlaison.—p. 423.
Vaginitis Emphysematosa. S. Bender and T. N. A. Jeffcoate.—p. 432.

Pemphigus Neonatorum.—Miller says that in a maternity department of a general hospital, which was opened in 1939, no outbreak of pemphigus had been observed for eight years, until several outbreaks and sporadic cases of pemphigus and acute conjunctivitis occurred between Sept. 17, 1947 and Jan. 17, 1948. Two of the cases were fatal. Swabbings were obtained as early as possible from the skin lesions and the eyes. Staphylococcus aureus (coagulase positive) was isolated from the lesions of 20 of the 22 patients, including lesions of both pemphigus and conjunctivitis. In the majority of the cases the swabbings produced heavy growths of Staph. aureus, which was frequently present in pure culture. All the strains of Staph. aureus except three were phage typed, and 16 belonged to phage type 3A. Each of the small outbreaks was due to the same bacteriophage type. Investigations showed that during the outbreaks the infective type of Staph. aureus was present in the nursery environment as well as in the air of the mothers' wards and in one of the isolated cubicles. An important finding in this investigation was the high nasal carrier rates of the infective strains of Staph. aureus among the unaffected infant contacts. The evidence suggested that the upper respiratory passages of these healthy infants were the main reservoirs of infection and that the nursery was contaminated from these sources. The author cites other observers who recently reported an outbreak of pemphigus in which the epidemic strain of Staph. aureus was widely disseminated among healthy infants in a nursery.

Lancet, London

2:81-120 (July 15) 1950

Significance of Discovery of Effects of Cortisone on Rheumatoid Arthritis. G. W. Pickering.—p. 81.
Investigation of Thyroid Function and Disease with Radioactive Iodine. E. E. Pochin.—p. 84.
Domiciliary Treatment of Pulmonary Tuberculosis with Sodium Para-Aminosalicylate. D. L. Pugh, E. R. Jones and W. J. Martin.—p. 92.
Case of Brill's Disease in London. J. C. Hawksley and E. J. Stokes. —p. 97.
Note on a Case of Brill's Disease in London. A. Felix.—p. 99.

Medical Journal of Australia, Sydney

1:785-820 (June 17) 1950

Place of Pathologist in Modern Medicine. J. V. Duhig.—p. 785.
Facial Paralysis Due to Fracture of Base of Skull: Surgical Therapy. J. P. Findlay.—p. 791.
Tidal Drainage: Efficient Apparatus. N. J. Bonnin.—p. 793.
Control of Malnutrition. I. S. Epstein, M. A. Mackay and C. N. Turner. —p. 799.
The Saliva: Short Review, with Special Reference to Dental Caries. M. R. Dewar.—p. 803.

1:821-856 (June 24) 1950

Clinical Significance of Sodium and Potassium Analyses of Biological Fluids: Their Estimation by Flame Spectrophotometry. V. Wynn, S. Simon, R. J. H. Morris and others.—p. 821.
*Influence of Maternal Measles (Morbilli) on Unborn Child. A. D. Packer.—p. 835.
Estimation of Pregnanediol in Urine. W. Williams.—p. 838.

Influence of Maternal Measles (Morbilli) on Unborn Child.—Packer says that reports about the concurrence of rubella (German measles) in pregnant women and of congenital abnormalities in their offspring led to the suggestion that perhaps other maternal virus diseases occurring in the early part of pregnancy may also be the cause of congenital abnormalities. In 11,000 cases of measles in a recent epidemic in South Australia there were 128 married women of childbearing age; these were investigated by questionnaire. Eighteen cases of maternal measles complicating pregnancy were discovered. Twelve of the offspring were apparently unaffected. Two were born with congenital abnormalities. In both cases the maternal infection occurred during the organogenetic period. The other four pregnancies terminated prematurely. In three cases the measles was the presumed cause; in the other case the attack of measles was complicated by severe pneumonia, which was the probable cause of the abortion. The author feels that although it is unwise to attempt to generalize from a comparatively small number of cases, it seems justifiable to regard measles as in no way comparable in importance to rubella as a teratogenic agent in humans. The association of seven cases

of congenital defects with measles infection during the first trimester may be merely fortuitous, and many more cases will have to be investigated before coincidence can be excluded.

New Zealand Medical Journal, Wellington

49:195-326 (June) 1950. **Partial Index**

Endocrine Approach to Arthritis. H. R. Donald.—p. 195.
Treatment of High Blood Pressure with Hexamethonium Iodide. P. A. Restall and F. H. Smirk.—p. 206.
Accidents in the Home: Study of Patients Admitted to Auckland Hospital April, 1948-March, 1949. C. N. D. Taylor.—p. 229.
Tuberculous Meningitis Treated with Streptomycin: Preliminary Report. J. B. MacGibbon.—p. 236.
Present Position of Treatment of Carcinoma of Breast. R. O'Regan. —p. 244.
Virus Infections of Nervous System. I. M. Allen.—p. 249.
Comparative Value of Curarising Agents with Special Reference to Convulsion Therapy. R. Presland and H. Palmer.—p. 262.
Unusual Tumours of Superior Mediastinum: Report of 2 Cases. R. T. Wade.—p. 272.
After-Treatment of Amputation Stumps. A. Macdonald.—p. 278.
*Emotional Aspects of Essential Hypertension. B. W. Murphy.—p. 284.

Emotional Factors in Hypertension.—Murphy discusses the following questions: (1) Are emotional factors causally significant in hypertension? (2) Is there anything specific about the personalities and conflicts of hypertensives? (3) Is the hypertensive's emotional state important from the viewpoint of therapy? He cites opinions of other investigators and his own observations and concludes that while emotional conflict cannot be regarded as the "cause" of hypertension, it has an intimate relation to it. He disagrees with statements concerning a specific hypertensive personality and specific conflicts. Rather it appears that persons of most diverse personalities and with differing conflicts develop the disorder. A real need exists for psychiatric examination and psychotherapy in all hypertensive patients. The emphasis is on obtaining as free and spontaneous a history as possible and providing the patient with a reassuring relation in which he can reduce his interpersonal tensions by discussing his problems with the physician.

Practitioner, London

165:1-106 (July) 1950. **Partial Index**

Favourite Prescriptions. Lord Horder.—p. 5.
Favourite Prescriptions in General Practice. H. Barber.—p. 10.
Favourite Prescriptions in Pulmonary Diseases. W. E. Lloyd.—p. 18.
Diseases of Domesticated Animals Constituting Hazard to Mankind. G. F. Boddie.—p. 67.
Digitalis and Strophanthus. K. D. Wilkinson.—p. 75.

Proceedings of Royal Society of Medicine, London

43:399-490 (June) 1950. **Partial Index**

Intensification of Fluorescent Image in Radiology. F. I. G. Rawlins. —p. 411.
*Endemic Hepatitis Among U. S. Troops in Post-War Germany. J. R. Paul.—p. 438.
Streptomycin in Urinary Tuberculosis. A. Jacobs and W. M. Borthwick. —p. 453.

Endemic Hepatitis Among American Troops in Postwar Germany.—Paul says that although infectious hepatitis seems to be worldwide in distribution, there are certain geographic areas where rates in immigrant troops have consistently been high. Thus China, the South Pacific, the eastern half of the Mediterranean area, Italy and southern Germany are places where the hepatitis rates were particularly high in U. S. troops during and following World War II. An autumnal rise in the morbidity rate is a characteristic feature of infectious hepatitis; however, seasonal fluctuations of hepatitis in U. S. troops in postwar Germany have not shown this sharp autumnal peak but instead an ill-defined double peak. This is contrary to the single autumnal peak seen among British troops in their zone in postwar Germany. The question arises as to whether cases of serum hepatitis may not be frequently intermingled with those of infectious hepatitis in the U. S. troops to produce this different seasonal picture. Actually, the existence of serum hepatitis has been proved experimentally to be present in these military cases. The author suggests that the January peak in hepatitis might be related to the high autumnal peak, the interval between the two peaks being comparable to the long incubation period of serum hepatitis. The theory that serum hepatitis virus may conceivably be a variant or a relative of infectious hepatitis virus could be based on the speculation that the two diseases seem to occur simultaneously or consecutively in time and place.

Transactions Royal Soc. Trop. Med. and Hyg., London

43:555-690 (May) 1950. **Partial Index**

Chloramphenicol (Chloromycetin) and Tropical Medicine. J. E. Smadel.—p. 555.
Dissection of Mosquitoes for Malaria Parasites and Information to Be Derived Therefrom. E. P. Hodgkin.—p. 617.
Liver in Relation to Protozoal Infections. P. C. C. Garnham.—p. 649.
Pleural and Hepatic Amoebiasis Treated with Chloroquine: Report of 2 Cases. N. J. Conan Jr., J. A. Head and A. E. Brewer.—p. 659.
Seasonal Variations in Rainfall: Prevalence of Haemagogus and Incidence of Jungle Yellow Fever in Brazil and Colombia. H. W. Kumm.—p. 673.

Belgisch Tijdschrift voor Geneeskunde, Leuven

6:337-384 (April 15) 1950. **Partial Index**

Ocular Symptoms of Intracranial Tumors. J. François.—p. 337.
New Concepts in Therapy of Allergic Diseases. J. Jamar.—p. 351.
*Hyperimmune Serum in Therapy of Whooping Cough. F. A. Willemijns. —p. 357

Hyperimmune Serum for Whooping Cough.—Willemiins produced whooping cough hyperimmune serum according to a method recommended by American investigators in 1938. He reports on 101 of 108 children in whom it was used therapeutically. The majority of the 101 children were given 60 cc. of the serum, the dose which MacGuiness, one of the originators of this treatment, regards as minimum. Willemijns administered three intramuscular injections of 20 cc. each, with intervals of 24 or 48 hours. Penicillin, sulfonamide preparations or streptomycin, were added singly or combined to the hyperimmune serum therapy in some of the patients. Fifty of the 101 patients were less than six months old, and all but 14 were less than two years old. Complications in the form of pulmonary, cerebral, dystrophic or other disturbances existed in 51 of the children. The results of treatment were favorable in 75 per cent of the complicated cases and in 86 per cent (43 of 50) of the uncomplicated cases. Fatalities resulted in five of the complicated and one of the uncomplicated cases. Willemijns feels that, in view of the high incidence of complications and the young age of the children, the results obtained with the hyperimmune serum were favorable.

Bibliotek for Laeger, Copenhagen

142:85-120 (May-June) 1950

*Psychologic Tests in Analysis of Organic Psychoses. V. Lunn.—p. 85.

Psychologic Tests in Analyses of Organic Psychoses.—Lunn asserts that clinical psychologists have the problem of refining the clinical examination technic and of working out, testing and eventually standardizing psychological tests. This must be done to insure that the methods already in use are properly applied and to extend the application of psychological methods in diagnosis. Clinical observation must be the starting point for this work. In his approach to the individual case the psychologist must follow one of two paths. He can seek to characterize the patient's behavior by the "laws" familiar to him from normal psychology and, assuming that these laws are also valid for abnormal mental life, apply "normal-standardized" tests in the pathological cases and express the results in relation to normal behavior. The abnormal is interpreted as a purely quantitative departure from the normal. The other path is to take the clinician's often vague observations and impressions as the starting point for the analysis and to try to formulate tests fitted for characterizing special disturbances in behavior. Clinical observation of the distinctive character of a case should be the underlying principle in the work of clinical psychologists in neurological and psychiatric departments. Normal-standardized quantitative test methods have their field of use, but the opportunity for extending psychological perception is in penetrating analysis of the individual case. Qualitative psychological test methods offer, according to the author, the greatest opportunity for widening understanding of the dementia syndrome. It is not the conclusions the patient arrives at but the manner in which he reaches them that is to be described.

Cardiologia, Basel

16:129-190 (No. 3) 1950. **Partial Index**

Effects of Hydergin (Ergot Preparation) on Hypertension Produced by Nor-Epinephrine. A. Kappert, G. C. Sutton, A. Reale and K.-H. Skoglund.—p. 129.
*Cardiovascular Effects of Nor-Epinephrine in Man. O. Bayer, K. Blumberger and S. Effert.—p. 145.
Repeated Bleeding in Case of Cor Pulmonale. A. de Vries, H. H. Fryd, S. Gitelson and N. Herz.—p. 169.

Cardiovascular Effects of Nor-Epinephrine.—Bayer and his co-workers point out that although it was accepted for a long time that epinephrine always acted as the transport substance in the sympathetic nervous system, later investigations discovered a sympathicomimetic substance that differed from epinephrine. It was found that two types of sympathin are formed: sympathin E, the stimulating substance, and sympathin I, the inhibiting substance. It was assumed that sympathin E is identical with the primary amine of epinephrine, arterenol (norepinephrine), and sympathin I with epinephrine. The authors studied the action of epinephrine in healthy persons and in young persons with hypertension. They found that when arterenol is administered intramuscularly it produces at first an increase in arterial tension with decrease in heart rate and stroke volume. Subsequently, the stroke volume increases with concurrent decrease of blood pressure and tension. The changes in cardiac dynamics, as judged by the length of the isometric contraction and ejection phases, are predominantly due to peripheral vascular reactions. It is probable that arterenol also has a direct effect on the dynamics of the heart.

Chinese Medical Journal, Shanghai

67:405-462 (Aug.) 1949. **Partial Index**

*Paraaminobenzoic Acid in Treatment of Typhus. H. L. Chung, N. C. Chang, Y. P. Ts'ao and others.—p. 421.
Penicillin Treatment of Pneumococcic Pericarditis. H. L. Chung.—p. 430.
Intratheal Administration of Penicillin: Report of Fatal Case in Adult. T. T. S. Chou and W. R. Welply.—p. 438.
Streptomycin in Bubonic Plague. R. T. S. Chen.—p. 442.

Paraaminobenzoic Acid in Typhus.—Chung and his associates report observations in 24 cases of typhus. The diagnosis was based on history, symptoms, signs and laboratory observations. The Weil-Felix reaction was positive in every case. The spleen was palpable in most instances, and typical typhus rash was observed in all but six patients. Treatment with paraaminobenzoic acid was started as soon as the diagnosis was made, within from four to nine days after onset of the symptoms. The drug was given in 2 Gm. doses at intervals of two or four hours. Later in the course of treatment the drug was sometimes given in 4 Gm. doses at four hour intervals and the treatment was omitted during the night. The average total dosage was 81.6 Gm. The average time required for the temperature to become normal after institution of treatment was 3.4 days. No untoward effects of the drug were observed apart from occasional and transient nausea, urticaria and tinnitus. All 24 patients, including two who were about 70 years old, recovered. The disease was rendered mild, and the convalescence was made smoother and shorter than otherwise. Most of the patients resumed activities within two weeks after subsidence of fever.

Clinica, Bologna

12:1-70 (No. 1) 1950. **Partial Index**

*Acute Necrosis of Pancreas. A. Franchini.—p. 1.

Acute Necrosis of Pancreas.—Franchini reports four cases of acute necrosis of the pancreas. The causative factor was biliary calculosis in one patient, chronic alcoholism in one and surgical trauma in two patients operated on for gastroduodenal ulceration. The ulcer penetrated the pancreas in both patients. The clinical symptoms were typical in the first two patients and atypical in the other two. Cardiovascular collapse appeared early in the former and late in the latter. In the latter two, symptoms of peritonitis appeared a few hours after gastric resection in one patient and on the third day after resection in the other. The disease was acute and rapidly fatal. Necropsy revealed acute necrosis of the pancreas, acute hemorrhagic necrotic pancreatitis or acute hemorrhagic peritonitis. Clinical symptoms are suggestive, but should be confirmed by a pronounced rise in blood and urine amylase, by hyperglycemia and glycosuria, lowering of blood calcium and roentgen picture of persisting segmental ileus of the transverse colon. Treatment consists of bed rest, fasting, administration of atropine, narcotics and liquids (parenterally) and continuous removal of gastric secretions, followed in two or three weeks by operation on the biliary tract. The surgical treatment consists of drainage of the necrotic pancreatic foci, the pancreatic capsule and the posterior omental pouch, followed in two or three weeks by cholecystectomy, choledocotomy or cholecystostomy. Surgical treatment is indicateed when the diagnosis of acute necrosis of the pancreas is not clear. Operative treatment is contraindicated when there is a definite diagnosis of moderate pancreatitis or limited inflammation of the retroperitoneal tissues or in the presence of acute circulatory collapse.

Lyon Chirurgical

45:513-640 (July) 1950. **Partial Index**

Surgical Treatment of Icterus "by Hepatitis"; Sympathectomy Around Hepatic Artery. P. Mallet-Guy, J. Feroldi and L. Eicholz.—p. 513.
Notes on Treatment of Post-Herpetic Neuralgia. R. Leriche.—p. 539.
Left Hemiplegia as Sequela of Contusion of Internal Carotid Artery in Child: Treatment by Five Infiltrations of Stellate Ganglion; Nearly Complete Recovery. R. Leriche.—p. 541.
*Papillary Tumors of Thyroid. M. Dargent and P. Guinet.—p. 543.
*So-Called "Cervical Rib" Syndrome. P. Wertheimer and G. Allègre.—p. 565.

Papillary Tumors of Thyroid.—Dargent and Guinet report on 30 cases of papillary tumors of the thyroid. The anatomicoclinical type of the tumor is mentioned in 12 patients. Isolated growth was observed in the thyroid of six patients, a cystic papillary adenoma in two and a solid papillary adenoma in four. Progressive invasion of the capsule was the most constant microscopic observation. The papillary tumors presented a definite affinity for the lymph nodes. Microscopic papillary emboli were frequently observed within the veins. The growth of such tumors was slow but recurrences after surgical intervention were frequent. Four patients followed for 11 to 30 years after the first intervention were operated on three and four times for local recurrences of the tumor in the thyroid or in the lateral cervical lymph nodes. Death resulted from local and mediastinal spread with compression of the trachea or hemoptysis in two of these. The papillary tumors of the thyroid are to be considered as epitheliomas of low grade malignancy. Thyroidectomy with block dissection of the lymph nodes of the neck is the treatment of choice. Roentgen irradiation is advised only when surgical approach is impossible. Sensitization of the lesions to roentgen rays by synthetic antithyroids during the period of irradiation, preceded by a complete check up with the aid of a radioactive iodine tracer, may be preferable in recurrences or metastases.

"Cervical Rib" Syndrome.—According to Wertheimer and Allègre the "cervical rib" syndrome does not justify the term coined for this condition, because the supernumerary rib represents only an accessory but not the determining factor in many clinical manifestations for which it has been considered responsible. Observations in nine cases suggest that the sympathetic nervous system plays an important part in the pathogenesis of the vascular and nervous disturbances. Resection of the supernumerary rib revealed by preoperative roentgen examination was omitted in two of the eight cases in which the presence of the rib was confirmed by surgical intervention. It was not confirmed in one case. Resection of the rib is to be preferred in patients with neurologic signs in whom operation reveals pressure by the rib on the plexus. Sectioning of the scalenus anticus muscle is imperative and was performed in all patients. Surgical intervention on the sympathetic nervous system is the treatment of choice in the absence of an anatomic lesion, while resection of the rib alone may not be sufficient. Six patients benefited by periarterial sympathectomy, stellectomy, or stellectomy combined with excision of the second thoracic ganglion. Patients with symptoms of vasomotor disturbances, Raynaud's syndrome or signs of functional ischemia will benefit from the vasodilator effect of periarterial sympathectomy in cases in which the subclavian artery appears permeable and normal, while stellectomy is advisable if arterial obliteration is permissible. Surgical intervention on the artery is required in cases in which local or distant arterial lesions are revealed by arteriography.

Medizinische Klinik, Munich

45:417-448 (April 7) 1950. **Partial Index**

Systolic Murmurs. F. Branscheid.—p. 422.
Experiences with Di-Insulin "Novo" in Ambulatory Therapy. L. Obert and W. Franz.—p. 425.
*Penicillin Therapy of Endocarditis Lenta. L. Hantschmann and H. J. Trube.—p. 428.
Pathogenesis of Neural Complications in Mumps: Serratus Paralysis in Epidemic Parotitis. H. Stutte.—p. 432.
Dermatitis Due to Methylthiouracil. H. W. Spier.—p. 434.

Penicillin Therapy of Endocarditis Lenta.—Hantschmann and Trube report on penicillin treatment of 21 patients with endocarditis lenta. After one to three years of observation, nine patients were free from relapse, one was still undergoing treatment and 11 had died. The authors gained the impression that the combination of penicillin therapy with intermittent massive doses of sulfonamides is superior to penicillin alone. Prognosis is more favorable in young patients and with early treatment. The authors were able to corroborate observations made by others that the prognosis is particularly unfavorable when enterococci are present. There was no evidence during the treatment of their patients that the danger of decompensation and the threat of embolism was increased. Fatal disturbances of the coronary blood perfusion developed in two of the patients, but the authors feel that these risks must be accepted because of the otherwise unfavorable prognosis.

45:449-488 (April 14) 1950. **Partial Index**

Streptomycin Therapy of Tuberculous Meningitis in Adults. E. Boden and H. Ferenbach.—p. 449.
Vasodilators of Epinephrine Series. K. Wiemers.—p. 453.
*New Treatment for Heart Disorders. P. W. Braeucker.—p. 456.
*Complications During Blockage of Sympathetic Nervous System. H. R. Bourmer.—p. 458.
Critical Evaluation of Demonstration of Causative Agents in Endocarditis Lenta. G. Reimold, L. Heilmeyer and A. M. Walter.—p. 475.

45:489-520 (April 21) 1950. **Partial Index**

*New Treatment for Heart Disorders. P. W. Braeucker.—p. 494.
Morphology of Peptic Ulcer in Roentgen Examination. E. Jaeger.—p. 498.
Spastic Hemiplegia with Subsequent Contralateral Parkinsonism Following Epidemic Encephalitis in Early Childhood. H. Schwab.—p. 502.
Necrotizing Esophagitis in So-Called Intestinal Gangrene. K. Schmidt.—p. 504.

New Treatment for Heart Disorders.—Braeucker is concerned with what he terms a neural therapy, that is, the injection of procaine hydrochloride into the sympathetic ganglions that are the centers of cardiac innervation. He describes results of neurohistological studies on cardiac innervation, which revealed what he terms "reticularism." The heart receives medullary, sympathetic and spinal fibers from numerous segments. Reticularism means the weaving together of all vagal, sympathetic and spinal tracts into a closed reticulum, which forms practically a new anatomic unit in which all nerves are coordinated. When a myocarditis develops in the course of an acute infectious disease and an inflammatory focus appears in the heart, the neural elements become involved, and, as a result, there is interference with the orderly reflex action. The neural irritation is transmitted to the centers in the spinal cord and in the medulla. The vasomotor system and the entire cardiovascular system may become impaired. Even after the primary myocarditis has regressed, the neural process, the "reticularitis," which involves the disturbance in the regulatory processes, may progress. The author speaks of progressive neuroreticular dysreflexia. Injection of procaine hydrochloride into the centers of cardiac innervation interrupts the dysreflexia and effects mobilization and normalization of the centers still capable of being reorganized and stimulates the still functioning neuromuscular cardiac system. The case history of a man with chronic myocarditis illustrates how by the injection of the lowest cervical and the two upper thoracic ganglions with procaine hydrochloride it was possible to control severe anginal pain and enable the man to resume his work. The author describes reactions of other patients to this treatment and states that neural therapy and digitalis therapy can be used concurrently, although in some cases digitalization can be dispensed with after procaine hydrochloride has been injected into the sympathetic ganglions.

Complications During Blockage of Sympathetic Nervous System.—Bourmer shows that blockage of the sympathetic nervous system by procaine hydrochloride may cause undesirable complication and even death. At his clinic there were 10 instances of complication in the course of 633 temporary blockages of the sympathetic nerves. These included psychomotor unrest, Horner's syndrome with severe headache and vomiting, pneumonia, pneumothorax, central respiratory arrest and severe collapse. These complications did not induce the clinic to discontinue the therapy of temporary interruptions of the sympathetic nerves, but suggested adherence to the following rules: 1. Temporary blockage of the sympathetic nerves should be done only at the hospital, not in the doctor's office. 2. Clear indications must be present. 3. Patients with heart lesions or those with an unstable sympathetic nervous system are not suited for the therapy. 4. Blockage of the stellate ganglion should be done only on one side at each intervention. If bilateral blockage is necessary, it should be done alternately on the two sides. 5. Blockage of the celiac ganglion and of the superior and inferior mesenteric ganglions should always be done in the reclining posture and should be followed by careful observation.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

94:1165-1232 (April 29) 1950. **Partial Index**

Sedimentation Rate and Haptoglobin Index in Determination of Activity of Disease Process. T. A. Wouters.—p. 1171.
*New Method for Artificial Respiration. W. F. Gnirrep.—p. 1182.
Excretion of Poliomyelitis Virus by Healthy Contact Persons. J. D. Verlinde and E. Nihoul.—p. 1186.

New Method of Artificial Respiration.—Gnirrep describes a new method of artificial respiration in which the rocking method of Eve is combined with Sylvester's method. It has been demonstrated that of the various methods of artificial respiration Sylvester's method is best for circulation of the blood and for pulmonary ventilation, whereas the rocking method of Eve stimulates diaphragmatic movement and abdominal respiration. Ordinarily Eve's rocking method is carried out with the patient lying on his stomach, which permits expulsion of water. When Eve's and Sylvester's methods are combined, however, the patient lies on his back. The author advises that the first few rocking movements be made with the patient on his stomach. The patient is then turned on his back and the two methods combined. The method is easily learned and can be carried out by one or two persons.

94:1405-1472 (May 20) 1950. **Partial Index**

Intestinal Apoplexy. A. Tholen.—p. 1411.
Symptomatic Hemolytic Anemia in Acute Areactive Generalized Tuberculosis. G. A. Lindeboom.—p. 1421.
*Tuberculosis in Nursing Personnel With and Without BCG Vaccination. D. Bergsma.—p. 1434.

BCG and Tuberculosis in Nursing Personnel.—Bergsma warns that there is grave danger that pulmonary tuberculosis will develop in student nurses who give a negative reaction to the tuberculin test if they nurse tuberculous patients. Among 73 student nurses who had a negative tuberculin test, 26 contracted active primary tuberculosis, and one died. Of 134 student nurses with a positive tuberculin reaction only four became ill. The author recommends vaccination with BCG for student nurses in tuberculosis sanatoriums, because, of 60 so treated, only three contracted a mild tuberculosis, from which they rapidly recovered.

Nordisk Medicin, Stockholm

43:737-778 (May 5) 1950. **Partial Index**

*Psychosomatic Aspects of Peptic Ulcer. F. F. Wagner.—p. 743.
*Dyspepsia in Tuberculous Patients. S. T. Madsen.—p. 753.
Result of Gastrectomy. H. Brandberg.—p. 755.
Corrosive Injuries of Gastrointestinal Tract. Possibilities of Prevention. U. K. Kiviranta.—p. 756.

Psychosomatic Aspects of Peptic Ulcer.—Wagner reviews the literature on neurogenic and psychogenic factors in peptic ulcer, with emphasis on emotional problems. If etiologic significance is attached to psychic factors, suitable psychotherapy must be regarded as necessary and should be started simultan-

cously with medical treatment. Often excellent results follow training in relaxation exercises, which help reduce the increased vegetative tonus. In suitable cases hypnotherapy may shorten the treatment time. Ambulant psychotherapy is suggested in patients with dominant neurotic symptoms and slight or doubtful roentgen changes. Detailed description is given of two cases of duodenal ulcer in which excellent results were obtained with relatively short ambulant psychotherapy. Closer cooperation between internist and psychiatrist is recommended.

Dyspepsia in Tuberculous Patients.—From his study of 94 patients with extrapulmonary tuberculous foci Madsen concludes that the relation which exists between pulmonary tuberculosis and dyspepsia is also found between dyspepsia and extrapulmonary tuberculosis. Here the dyspepsia cannot depend on local irritation of the expectorate on the gastric mucous membrane. No certain rhythm or disturbance of rhythm was demonstrable. A relation was apparent between low gastric acidity and dyspepsia and between dyspepsia and a high sedimentation rate. The dyspepsia is thought to be due to toxemia of tuberculosis and not to a local effect.

43:821-863 (May 19) 1950. Partial Index

Therapeutic Application of Adrenal Cortical Hormone. Review. R. Luft and B. Sjögren.—p. 821.
Effect of Adrenal Cortical Hormones and Pituitary Adrenocorticotropic Hormone (ACTH). M. Bjørneboe.—p. 822.
*Oxygen Therapy in Surgery. L. Troell.—p. 830.
Mass Examination of Heart. Accidental Findings During Photofluorography. J. Riis.—p. 838.
Diverticula of Colon and Their Sequels. N. A. Nicolaysen.—p. 842.
Braces in Treatment of Ankylopoietic Spondylarthritis. E. Snorrason.—p. 847.
Allergic Ocular Symptoms Following Mantoux Test and BCG Vaccination. T. Wessl Aas.—p. 849.

Oxygen Therapy in Surgery.—In investigations on oxygen therapy in progress at the Karolinska Sjukhus, operative and postoperative circulatory and respiratory changes are being studied by means of heart catheterization. In almost every patient examined during the first few hours after operation, Troell observed 80 to 86 per cent oxygen saturation without clinical symptoms of anoxia, such as dyspnea or cyanosis. The degree of postoperative anoxemia was greater in patients classified as bad risks. When oxygen was administered postoperatively through a nose catheter (Scherstén or Radner) or oxygen helmet (Barach), the arterial oxygen concentration rose to 95 to 96 per cent in every case, with consequent clinical improvement and establishment of normal arteriovenous difference, oxygen consumption and cardiac output. The postoperative anoxia is regarded as a combination of several anoxia types: (1) anoxemia due to the after-effect of morphine scopolamine given preoperatively, after-effect of the anesthesia, impaired ventilation depending on sensations of pain from the operative field and impaired free air passage, (2) stagnation anoxia due to impaired peripheral circulation and (3) anemia anoxia due to loss of blood at operation with oligemia. The central nervous system and the myocardium are especially sensitive to this anoxia.

43:863-898 (May 26) 1950. Partial Index

*Scarlet Fever Otitis. Roentgen Therapy Compared with Other Forms of Treatment. A. Bydal.—p. 867.
Tuberculous Meningitis. A. Fretland and J. A. Johnson.—p. 870.
Allergic Pleurisy with Excessive Eosinophilia. G. Wihman.—p. 873.
Superficial Papilloma of Ovaries. F. Holtz.—p. 876.
Temporal Arteritis (Horton). M. Braae.—p. 877.

Scarlet Fever Otitis.—Bydal's material consists of 133 patients with scarlet fever with 172 affected ears treated in the Ullevål epidemic department in 1944 and 37 patients with 48 affected ears treated since 1947. In 84 ears no drug or roentgen therapy was given, 42 were treated with sulfathiazole, 45 were given sulfathiazole and roentgen therapy and 48 were treated with penicillin. The poorest results, both with regard with mastoiditis and duration of otitis occurred in the untreated groups. Distinctly better results were obtained with sulfathiazole treatment, and roentgen treatment with sulfathiazole seemed to reduce further the frequency of mastoiditis. The duration of uncomplicated otitis, on the other hand, seemed somewhat longer after roentgen treatment than after sulfathiazole alone but was definitely less than in the untreated cases. By far the best results were obtained with penicillin treatment. If the number of penicillin resistant patients should increase, roentgen treatment of acute otitis might be indicated, possibly in combination with drug therapy.

Presse Médicale, Paris

58:613-628 (June 3) 1950

*Surgical Treatment of Epilepsy. J. Guillaume, G. Mazars and Y. Mazars.—p. 613.
Vitamin A and B-Carotene in Disorders of the Liver. S. Livieratos, A. Dervenagas and C. Andriotakis.—p. 614.

Surgical Treatment of Epilepsy.—According to Guillaume and co-workers neurosurgical treatment is applicable not only in cases of symptomatic epilepsy due to cerebral tumors, abscess or cerebral vascular anomaly but in about 20 per cent of cases of idiopathic epilepsy. Electroencephalography offers considerable aid in the differential diagnosis of cortical epilepsy from diencephalic epilepsy. Diagnosis of a cortical focus and its location can be established by electroencephalography combined with ventriculography and arteriography. Repeated electrocorticography with eight articulated leads placed on the cortex in the course of surgical intervention may provide valuable information regarding required extent of the excision. Surgical removal must be carried out gently; electrocoagulation should be used only in exceptional cases. Forty epileptic patients were operated on with the aid of the electrocorticographic technic. Six of the 40 patients had jacksonian epilepsy, 18 a temporal or deep insular focus and 10 a frontal focus. Ten patients with temporal or insular focus had loss of consciousness or generalized attacks, but clinical facts did not permit localization of the epileptogenic focus. Repeated electroencephalographic examinations were combined with ventriculography and arteriography. Surgical recovery resulted in all the patients. The follow-up period is still too short to permit definite conclusions. Immediate results were good except in four cases in which treatment failed because of insufficient resection and in one case of extensive encephalopathy in which only a reduction in the number of attacks was obtained by partial excision. Several children, who before the operation were kept for several years in an institution for incurables, were free from attacks for one year, went to school and led a normal life. An adult patient who had had daily attacks before the operation which incapacitated him for work is now working.

58:629-644 (June 7) 1950. Partial Index

Intolerance Reactions in Children. J. Cathala.—p. 629.
Significance of Hemagglutination Test in Diagnosis of Tuberculosis and Control of BCG Vaccination. C. Gernez-Rieux and A. Tacquet.—p. 631.
Incidence of Transmission of Typhoid Fever by Butter: Necessity of a Campaign for Pasteurized Butter. J. Boyer and Miss Tissier.—p. 634.
*Lobotomy in Psychopathy. D. Ferey, Godard and Lalanne.—p. 636.
*Reeducation of Poliomyelitic Patients: Motor Picture. D. Leroy.—p. 638.

Lobotomy.—Ferey and co-workers performed lobotomy on 120 patients with anxiety states, schizophrenia of the paranoid type and reactional psychosis of emotional origin but refractory to psychotherapy and shock treatment. The authors emphasize the necessity of investigating preoperatively the intellectual level of the patient, because the degree to which it may be preserved is of importance in the evaluation of the operative result. The authors call attention to the hemostasis of the cortex by coagulation of tissue, 1 to 2 cm. deep, to create a tunnel joining the cavity created by the lobotomy with the external surface of the brain. The cutting of the white matter must be done slowly. Reeducation of the patient and sympathetic and intelligent behavior of the family toward him is essential for the maximum benefit to be derived from the operation. There were five postoperative deaths. Twenty-nine patients were able to resume their occupation; 35 patients who had been in institutions before the operation could be returned to their families, and 40 patients were still institutionalized but had become calm and happy. Eleven patients were counted therapeutic failures. The cases were followed for three years, so that the cures obtained may be considered permanent in the majority of the cases.

Reeducation of Poliomyelitis Patients.—According to Leroy, reeducation of poliomyelitis patients presents a dual problem: one, concerning the anatomicophysiological recovery of the involved muscles, and the other, the psychophysiological restora-

tion of the neuromuscular arc of the voluntary motion. The ganglion cells in the anterior horns of the spinal cord are those most frequently attacked in poliomyelitis, but Brodmann's area 6 of the cerebral cortex may be affected simultaneously, or its involvement may represent a functional disturbance secondary to the lesions of the spinal cord. The patient loses the knowledge of motion because he loses his kinesthetic memory. Various sensory impressions must be supplied to the patient in order to help him to recover reflexes and automatisms. The author treated 55 poliomyelitis patients with balneotherapy in order to restore the anatomicophysiologic status of the muscles and for psychophysiologic reeducation. Water at a temperature of 37 C. exerts an effect on the cutaneous, aponeurotic, muscular and articular sensory fibers. Active swimming movements are facilitated by the suppression of the force of gravitation. Orders are given for such movements in a loud, rhythmic manner, with voice and gestures synchronized, while the patient watches his own movements in the water. Thus auditory and visual sensations are added to the thermic sensations. Special roller skates were employed for exercise. Additional treatment consisted of a series of "psychomotor tables" designed for reeducating the sense of direction and the precision of the gesture. These tables are based on the principle of the "object to reach" and comprise colored pictures of objects of various shapes and sizes. Complete recovery was obtained with this therapy in 40 patients, who were able to walk alone without any support after one to six months of treatment. Treatment of the remaining 15 patients is still in progress. Only three of them have not yet recovered the standing position. Active and not passive exercises are required to bring into action the complete circuit of voluntary movements.

58:645-660 (June 10) 1950

Behavior of Middle Lobe of Right Lung with Respect to Tuberculosis. H. Brocard and A. Cristini.—p. 645.
Use of Neostigmine in Treatment of Pyrosis in Pregnant Women. M. Dumont and P. Bourbon.—p. 646.
*Action of B.P.A.S. (Sodium Salt of Benzoyl-Orthohydroxypara-aminobenzoic Acid) in Tuberculosis of the Genitourinary Tract. J. R. Debray.—p. 647.

A Derivative of Paraaminosalicylic Acid in Tuberculosis of the Genitourinary Tract.—Debray treated 14 patients with tuberculosis of the genitourinary tract with the sodium salt of benzoyl-orthohydroxyparaaminobenzoic acid. Five patients had bilateral renal tuberculosis, four had unilateral renal tuberculosis, three had tuberculous epididymitis and two patients who had had one kidney removed for tuberculosis had pyuria with Koch's bacilli. The drug was eliminated during the eighteenth and the twenty-fourth hour of the ingestion. Its elimination was, therefore, slower than that of paraaminosalicylic acid. Consequently, the concentration of the derivative in the blood was prolonged. Ten to 15 Gm. were given in three or four divided doses daily for six months. The tolerance of the drug was highly satisfactory. Neither vomiting nor nausea occurred. As a rule, Koch's bacilli disappeared from the urine within six weeks to two months. The bacilli were absent for the duration of the treatment and in some cases for two months after its discontinuance. Bladder symptoms were improved in nearly all the early cases. The diminished urea concentration of the involved kidney in patients with unilateral renal tuberculosis did not respond favorably to the drug. The urographic pictures did not show any improvement after several months of treatment, except in one patient with a definite improvement in the appearance of the calices and of the pelvis of the kidney, but with no improvement in his general condition. Disappearance of bladder symptoms, of pyuria and of bacilli in the urine does not warrant a favorable prognosis. It requires in addition improvement in the general condition, reduced sedimentation rate and increase in body weight. This new therapy should be combined with other types of medical treatment and particularly with a sojourn in a sanatorium or at least with rest in the country. Use of this drug makes it possible to limit the use of streptomycin to combined treatment with nephrectomy and to combating a still possible acute bout of the renal disease.

Rev. Española Enferm. Aparato Digest., Madrid

9:237-432 (May-June) 1950. **Partial Index**

*New Clinical Form of Cirrhosis of Liver: Hepatoenteropathy of Megaloblastic Anemia. E. Oliver-Pascual, J. Sanz Ibañez and others. —p. 311.

New Clinical Form of Cirrhosis of the Liver.—Oliver-Pascual and collaborators report on a new form of cirrhosis of the liver which they observed in 50 patients. Typical cirrhosis of the liver was proved in 30 patients at necropsy. This type of cirrhosis of the liver has not been previously described. It does not correspond to Eppinger's or Laennec's cirrhosis. It is due to deficiency of folic acid and vitamin B_{12} alone or combined with a deficiency of other vitamins of the B complex, the antipernicious factor of the liver, ascorbic acid and tyrosine. Predisposing factors for the combined folic acid-vitamin B_{12} deficiency are the so-called postgastrectomy disease, intestinal stricture, jejunocolic fistula and hyperthyroidism of the diencephalohypophysial type. The features of cirrhosis are hepatomegaly without jaundice, megaloblastic anemia, histamine-resistant achlorhydria, edema, hypertrophic gastritis and gastric disease of the type of sprue. The benign variety is common. It responds readily to combined liver and vitamin B_{12} therapy. The malignant variety is rare. Neither variety is associated with disorders of the portal circulation even in cases with splenomegaly. The main functional disorders of the liver are those of the metabolism of tyrosine, ascorbic acid and hemoglobin. Liver therapy combined with liberal administration of vitamin B_{12} and other vitamins of the B complex may cure the disease or at least prevent the advance of the benign to the malignant stage, which is rapidly fatal.

Semaine des Hôpitaux de Paris

26:2151-2212 (June 18) 1950. **Partial Index**

*Low Calcium Metabolic Levels: Technic and Results in Urinary Lithiasis, Tumorous Calcinosis and Certain Osteoarticular Disorders. R. Fontaine, P. Mandel, P. Frank and M. Ostertag.—p. 2151.
Direct Abdominal Approach in Surgical Treatment of Neoplasm of Rectosigmoid. M. Roux and E. Bernier.—p. 2158.
Truncal Sciatica and Radicular Sciatica: Statistics of 1,000 Cases Operated on. R. Thurel.—p. 2164.

Calcium Metabolism with Calcium-Poor Diet.—Fontaine and co-workers studied calcium metabolism of 14 patients placed on a diet poor in calcium. Three patients had aseptic urinary lithiasis, three had chronic ankylosing polyarthritis, two had fragilitas ossium (Lobstein's disease), one had von Recklinghausen's disease with normal blood calcium, one had osteitis deformans (Paget's disease), one had lipoid granulomatosis of the bones associated with the initial stage of von Recklinghausen's disease, one had subcutaneous diffuse calcinosis of tumorous type, one had generalized edema and osteoporosis of the lower extremities and one had generalized periostitis in the course of Hodgkin's disease. The amounts of calcium ingested by the patients varied from 142 to 586 mg. per day. Twelve of the patients received less than the minimum amount of calcium required (about 450 mg.), while two received about 25 per cent more than the minimum requirement. All the patients were placed on this diet for at least five days. The calcium content of the urine was determined every day, while that of the feces was determined only once during this period. Six patients, three with aseptic urinary lithiasis, one with osteitis deformans, one with tumorous calcinosis and one with periostitis in the course of malignant lymphogranulomatosis had a negative balance sheet for calcium. The balance for calcium was decidedly negative in the patients with urinary lithiasis, as was that in the one patient with tumorous calcinosis, in whom the balance became progressively normal after thymoparathyroidectomy in proportion to the postoperative improvement of the patient. No conclusions could be drawn from the results obtained in the patients with osteodystrophy, ankylosing polyarthritis and cancerous osteomyelosis because of the small number of cases. The normal amount of calcium excreted daily is at least 450 mg. Definite deviation from the normal (increased or decreased amounts) is significant. Measurement of excreted calcium appears to be the best method for detection of changes in calcium metabolism.

BOOK NOTICES

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

The Chemistry of Industrial Toxicology. By Hervey B. Elkins, Ph.D., Chief of Laboratory, Division of Occupational Hygiene, Massachusetts Department of Labor and Industries. Cloth. $5.50. Pp. 406, with 24 illustrations. John Wiley & Sons, Inc., 440 4th Ave., New York 16; Chapman & Hall, Ltd., 37-39 Essex St., Strand, London, W.C.2, 1950.

This book discusses poisons used in industry from the point of view of the chemist, engineer and factory manager. Emphasis is placed on the harmful substances themselves and the industrial processes in which they are used rather than on the physiologic effects of these poisons on the human body.

A general treatment of poisons in industry and the more important chemical, biochemical and physiologic tests for discovering their presence in the body or the environment are presented in the first two chapters of the book. Chapters 3 through 9 classify and discuss over 200 actual and potential industrial poisons. Data on their physical properties, harmful effects, degree or probable seriousness of intoxication, maximum allowable concentration and the best methods of determining whether a danger is present are given. Chapter 12 reviews the various classes of natural and industrial products. The remainder of the book is devoted to the industrial processes which produce toxic substances, the ways in which their dangers can be minimized or eliminated and the procedures and equipment to be used to test for such poisons. Much of the material is presented in tables which summarize the amount, occurrence and danger of the poison produced by various industrial processes. At the end of the book there is an extensive bibliography.

A valuable addition to this book is a comprehensive list of maximum allowable concentrations (MAC) for 218 toxic substances in the atmosphere or in body fluids and tissues and requirements for determining MAC values for other dusts and fumes. Issue may be taken by some with certain of the values set forth, but few will deny the over-all usefulness of this list and the accompanying explanatory comments on their development. This book provides a convenient source for information on the basic properties of common industrial poisons, not only for the industrial chemist and engineer, but for all who are interested in the chemical aspects of industrial toxicology.

Individual Sports for Men. By John H. Shaw, Dual Professor of Education and Physical Education, Syracuse University, Syracuse, New York, Carl A. Troester, Jr., and Milton A. Gabrielsen, Associate Professor of Education, New York University, New York. Cloth. $4.50. Pp. 399, with 121 illustrations by Hugh Cecil Reid. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1950.

Here is a book that carefully details the skills of tennis, golf, bowling, archery, fly and bait casting, badminton and a number of other individual sports. Recognizing that enjoyment of any game is to a considerable degree dependent on ability to perform, the authors give pointed directions on how to acquire reasonable competency in the various activities. Good illustrations add to the clarity of the presentation, and for the prospective teacher there is additional material on how to teach the activities to others. It is to be hoped that this volume will have a helpful influence in redirecting the sports emphasis in some of our physical education and recreation programs. Individual sports have too often been overshadowed by the team games; frequently they are even designated as "minor sports." From the standpoint of carry-over into later life they are actually the major sports and even during school and college years should have equal stress with the team games that are so appealing to youth. The book will undoubtedly prove of greatest value for teachers of physical education and recreation leaders, but anyone interested in improving his own game or ability in individual sports will also find it a helpful guide.

Gynaecology. By Herbert H. Schlink, M.B., Ch.M., F.R.A.C.S., Clement L. Chapman, D.S.O., V.D., M.B., George G. G. L. Stening, E.D., M.B., B.S., and Frederick N. Chenhall, M.B, B.S., F.R.C.S. Second edition. Cloth. 67s.6d. Pp. 650, with 198 illustrations. Angus & Robertson, Ltd., 89 Castlereagh St., Sydney, N.S.W., Australia; 48 Bloomsbury St,. London, W.C.1, 1949.

This textbook of gynecology has been prepared by members of the faculty for the use of undergraduate students at the University of Sydney. In future revisions, it is hoped that the catholicity of medical knowledge will be more apparent; certainly, no serious attempt has been made to incorporate many of the excellent contributions emanating from America, and the authors have overemphasized their own personal ideas and technics. This is especially noticeable in the border zone between midwifery and female surgery, but tends to flavor the entire volume.

At first glance, the book appears adequately illustrated. Of a total of 208 illustrations, about one-half are excellent photographs and photomicrographs; but 80 per cent of the line drawings are credited to other publications. The entire collection of 19 colored plates has appeared previously, many of them in the advertisements of a pharmaceutical house and all too highly colored and too diagrammatic. Far better illustrations are available in standard texts already familiar to the student. Sequentially, the chapters follow a familiar routine, but the excellent discussion on history taking and examination could be presented more advantageously prior to the sections on pathology. The type is clear, the paper of fine quality, and very few typographic errors are noted. A bibliography is conspicuously absent.

Few American observers will agree that many fibroids increase in size following the menopause; that these tumors are associated with fibrous changes in the myocardium or that they contain toxins inimical to health, or finally, that "one in four ovarian cysts is malignant."

One cannot fail to be impressed, however, with a technical skill yielding an operative mortality of less than 5 per cent in a large series (367) of radical Wertheim operations for carcinoma of the cervix when "blood transfusions were rarely required." With adequate quantities of blood, it is reasonable to assume that death in this notoriously hazardous group would have occurred infrequently. The occurrence of an error, obviously typographic, at this point detracts from the impression intended: "Our first hundred Wertheim operations were performed with a mortality of 3.5 per cent." The reader is left in doubt regarding the fate of one-half patient, statistically insignificant, as few can match this record. An initial dose of 7,000 mg. hr. of radium followed by the Wertheim operation (50 per cent operability) yields decidedly enviable results: in stages I, II and III, 50 per cent have survived 10 years, and over 30 per cent are classed as 5 year cures. The authors have not found roentgen therapy effective in cervical carcinoma, contrary to the opinion of many American authorities. Immediate cesarean section and hysterectomy for carcinoma of the cervix in pregnancy is not universally advised. The authors' skepticism regarding roentgen therapy, abetted by their personal skill in the radical operation, has undoubtedly influenced this decision, although no statistics are cited at this point.

Preliminary to the next revision of this text, the authors are urged to give early ambulation a trial, although it is conceivable that it may upset some well established nursing orders. Some procedures—one week in bed after a curettage or removal of polypi and in all other (postoperative) cases, keeping patients in bed for seventeen days; tying the patient's knees together loosely for one week and keeping them flexed on a pillow; the use of the rectal drip and, in only the more serious cases, intra-

venous fluids—savor somewhat of the immediate post-McDowell-Sims era in America.

The chapter on abortion is not acceptable according to present day standards. "In the majority of patients (excluding those who have suffered some accidental injury, such as a kick or fall) who present themselves to the gynaecologist in modern days, the condition is due to interference, undertaken either by the patient herself or by the criminal abortionist." This is in direct contravention to worldwide statistics showing that 10 per cent of human pregnancies are aborted spontaneously. The same incidence has been noted in mammals as low phylogenetically as the sow and in an American marsupial, the opossum (*vide* Hartman). In a metropolitan district somewhat larger than Sydney and in an experience extending over three decades, the "interference" group constitutes less than 1 per cent of the abortions attended.

The use of the tent to dilate the cervix prior to curettage for incomplete abortion has been discontinued, fortunately, in American teaching. The attendant who neglects necessary blood replacement while keeping his patient in bed 8 to 10 days after a spontaneous, uncomplicated abortion may obtain some consolation in knowing that high temperature at this time is due to absorption from necrotic tissue "and not to inflammation of the uterine wall or bacteremia."

Other inconsistent as well as bad advice suggests leaving unrepaired cervical tears incurred at delivery in the absence of "un-controllable [?] hemorrhage." "The symptomless tears may be left until the childbearing period is over. But they should be attended to then, on account of the frequency with which cancer develops in tears at this period of a woman's existence." When did careful inspection of the cervix immediately postpartum plus a neat repair fail in the "payoff"?

In Sydney, only 10 per cent of retrodisplaced uteri are congenital; 80 per cent result from miscarriage or childbirth, and some are incurred by playing tennis while the bladder is full, merely illustrating the well known fact that sports may be hazardous. An ingenious method is described for keeping the uterus in proper position following the removal of a uterine pack; also, one should insert a pessary for the same purpose immediately following a curettage in early pregnancy.

This is fundamentally a textbook, and many more of the well publicized conservative methods successfully used in other lands merit the authors' recognition. Throughout the book, greater emphasis should be placed on medical consultation, blood studies, kidney function tests and other aids to the reduction of operative risk.

Human Desires and Their Fulfilment. By K. W. Monsarrat. Cloth. 12s.6d. Pp. 270. University Press of Liverpool, 177 Brownlow Hill, Liverpool 3, 1950.

In this short volume the author reviews, condenses and discusses man's sociologic, psychologic and scientific thinking in the many attempts made by man to understand his world. All this is summed up in the statement that man desires primarily to establish and preserve harmony with his surroundings. Understanding of being or existence is presented as a functional, dynamic interaction between man and his environs considered as unity. Earlier interpretations of world events and beliefs are discussed and compared with present day scientific interpretations.

Scientists themselves are criticized, particularly physicists, for their seeming inability or unwillingness to admit that pure objectivity as such is an unjustifiable concept. The author rejects classification of thinking into subjective and objective as unsatisfactory. He proposes, describes and compares the "analytic" and "qualitative" views as a preferred classification. Strife as a necessary way of life, suggested by present concepts of evolution, is rejected in favor of "integration in consenting society" as the only hope for future evolutionary progress.

The volume is interesting though heavy reading. In chapters concerning the mind and thinking, a surprising lack of reference to Freudian dynamic psychology is evident, though many of its basic concepts are included. This is particularly surprising in view of mention and discussion of a host of early philosophies which led apparently to considerably less enlight-

Human Fertility and Problems of the Male. By Edmond J. Farris, Ph.D., Executive Director, Associate Member, The Wistar Institute of Anatomy and Biology, Philadelphia. Cloth. $5. Pp. 211, with 33 illustrations. The Author's Press, Inc., 11 William St., White Plains, New York, 1950.

In this book Dr. Farris reviews chiefly the work carried on by himself and his colleagues at the Wistar Institute. The book is intended to be "applicable and informative equally to the medical profession and to those among the intelligent laymen who are interested in this problem." The "problem" essentially involves: (1) the assessment of human male fertility on the basis of sperm count and sperm morphology, (2) the study of factors affecting semen quality and (3) the development of a rational therapy for sterility cases in which male infertility is a factor.

Recognizing that the problem of the childless couple involves reproductive function of the female as well as the male, the author in this book reviews only briefly the status of the wife, which will be considered in detail in a succeeding volume. Essentially then, this book is concerned with the type of case in which the fertility of the wife is established. According to Farris certain current practices for establishing the occurrence of ovulation in the human female are unreliable, and he and his colleagues have depended on their rat ovary hyperemia test as practically foolproof. Thus, basal temperature determinations are too variable and, even in obvious records, establish ovulation time too late for its practical use for purposes of conception. If, then, the practices advocated are to be employed, the use of the ovary hyperemia test is practically mandatory. It is therefore unfortunate that other students of human ovulation have not found the ovary hyperemia test as consistent as have Farris and his co-workers.

As the result of a rather extensive experience Farris finds that the total sperm count of an ejaculation is, by and large, the most useful index of male fertility. Other factors, such as the percentage of normal forms, the relative motility of the sperm, the p_H of the semen and its viscosity require consideration, but are rather infrequently associated with male sterility. He accordingly establishes three classes of males: (1) the highly fertile, having a total single ejaculate count of 185,000,000 or more active sperm; (2) the relatively fertile, having 80,000,000 to 185,000,000 total active sperm, and (3) the subfertile, whose total active sperm count is less than 80,000,000. These counts must be established after a minimum of five days of abstinence from coitus. These three classes are deduced from a set of data on couples with one child and with two or more children, in which no one of the 49 men examined gave a total count of less than 83,000,000. The establishment of the minimum fertile count by these data seems to lack statistical validity, and the statement "we have since confirmed this to our satisfaction by making similar analyses of the married men who came to us with fertility, contraceptive, or other problems" represents an interesting claim.

Dr. Farris proceeds to analyze the effect of various factors on these three main classes. These factors are frequency of emission; fatigue, physical and mental, and aging. In the cases of relatively fertile and subfertile men consideration is given to attempts to improve the semen sample. Of the various procedures attempted—vitamin E administration; various gonadotropic, thyroid and combination treatments; pituitary irradiation and concentration of active sperm—only pituitary irradiation gives some suggestion of qualitative as well as quantitative improvement. Most of these treatments are, however, admittedly preliminary in nature. In three final chapters considering useful procedures for the barren couple Dr. Farris considers artificial insemination, a study of 100 conceptions in sterile couples and specific practices during the fertile period.

It is difficult in a brief review to evaluate the specific utility of the practices rather definitely formulated by the author. It is especially difficult in this book, where the attempt to reach the intelligent layman as well as the physician has led to the inclusion of a number of arbitrary statements concerning human reproductive phenomena. For example, the author states that the functions of prostatic fluids and fluids of the seminal vesicle are not really known despite much recent work, especially by Mann and his colleagues; again he states (p. 20): "Nor is

the process of ovulation affected in any way . . . by the female orgasm," a point which Dr. Kinsey would debate; only a small percentage of human sperm regain motility after storage at low temperature despite the findings of Hoagland and Pincus and of Parkes. Again a number of the author's own findings are stated by fiat; e. g., "Women who have had repeated miscarriages often have husbands with 50 per cent or more abnormal spermatozoa" and "In a series of controlled tests in which we tried the Ringer-glucose (Nutri-sal) solution as an aid to women of longstanding infertility, the conception rate was not improved." Presumably the proof for these and other statements is to be found in the author's published papers cited in the bibliography.

If one takes the author's intention liberally and, therefore, as not requiring statistical proof of the validity of various conclusions, one finds a clearly defined method of semen examination and classification and an emergence therefrom of specific procedures with childless couples. The development of the theses involved is clear, simple and methodical. A number of simple and excellent illustrations and graphs are a feature of each special chapter, and the final series of recommendations is adequately set forth. Obviously the book should not be read alone as *the* treatise in this field, but it refreshingly presents a viewpoint which has led to useful practice.

Intestinal Intubation. By Meyer O. Cantor, M.S., M.D., F.A.C.S., Assistant Attending Surgeon, Grace Hospital, Detroit, Michigan. Cloth. $7.50. Pp. 333, with 147 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1949.

This book is written by a surgeon as a reference and manual on intubation of the small intestine. It was the apparent purpose of the author to familiarize the medical public, in particular the surgical public, with methods of such intubation, with the tube bearing the author's name and with the history of the development of intestinal tubes. There are listed approximately 237 references, which is a fairly complete reference list with regard to the subject. The book is rather generously illustrated.

There is an excellent chapter contributed by Dr. John R. Paine on the history of intestinal intubation, and another by Phelps, Cantor and Esling on the effects of intestinal gases on latex and neoprene balloons and the diffusion of gases through them. Disturbing implications are present elsewhere in the book. One is that intubation should be undertaken for acute complete obstruction of the left colon with "tremendous distension," in place of immediate surgical decompression. Another is that intubation should be employed for decompression of the intestine of infants for 24 hours of study in suspected intussusception. These recommendations are disturbing to those with unhappy memories of such procedures.

The following omissions might be mentioned: There is no mention of the work of Wangensteen and Rea on the origin of the gas found in the bowel in intestinal obstruction; there is no mention of the names of Miller and Machella while discussing the use of long tubes for "medical ileostomy," and a third omission is failure to mention Bruusgaard and his contributions to the management of volvulus of the sigmoid colon while discussing that condition. Another omission is failure to document adequately the history of the development of a mercury-weighted balloon attached to the tip of the tube used for intubation. In this regard, a rather careful review of the literature indicates the first mention of such an apparatus to have appeared in an article by J. J. Wild in the *British Medical Journal* for June 1944. The first mention of such an apparatus found in the literature by Cantor is two years later, in 1946. In a separate chapter, entitled "Role of Mercury in Intestinal Decompression Tubes," Cantor fails to mention the work of Wild. The paper of Wild is nevertheless listed in the bibliography of the book.

The book is poorly organized, the use of the English language could be improved and there is needless repetition in addition to the unfortunate omissions.

On the credit side, this book contains satisfactory information on methods of intestinal intubation, on nursing care of patients undergoing intubation, on the responsibility of the surgeon during intubation and on some errors in the use of tubes. Even these segments, however, are sprinkled with unestablished generalizations for which the author presents no supporting evidence. The book is replete with assertions that the small intestine can invariably be intubated by this method. There are no statistics as to the average or maximum time required, as to the number of patients who have undergone intubation or as to the type of cases involved. In view of the difficulties of other highly trained intubationists, one wonders about the differences.

Postgraduate Gastroenterology as Presented in a Course Given under the Sponsorship of the American College of Physicians in Philadelphia December MCMXLVIII. Edited by Henry L. Bockus, M. D., Professor of Gastroenterology, University of Pennsylvania, Graduate School of Medicine, Philadelphia. Cloth. $10. Pp. 670, with 258 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1950.

In this excellent volume there are assembled the transactions of a one week course in gastroenterology given at the Graduate School of Medicine, University of Pennsylvania, under the sponsorship of the American College of Physicians. The course was given by various members of the faculties of the Graduate School and the School of Medicine of the University of Pennsylvania as well as by guest speakers from other schools. It was not designed to cover the entire field of gastroenterology. As a result, the discussions presented are limited chiefly to recent advances and controversial subjects. As such they afford highly interesting and thought-provoking reading for the internist and specialist in this field. A number of the presentations will hold the interest of the general practitioner and provide him with much helpful and authoritative information. Chief of these topics are pyrosis, management of carcinoma of the stomach, the nutritional status of the patient with peptic ulcer, neuropsychiatric applications, allergic origin of abdominal symptoms, diagnosis and treatment of diseases of the pancreas and liver, the differential diagnosis of jaundice and the so-called postcholecystectomy syndrome.

There is a wealth of exceedingly instructive information in this book covering many aspects of disorders of the digestive tract from the biochemical, physiologic and pathologic points of view. Important contributions likewise are made by the surgeon and radiologist, especially concerning the diagnosis and surgical management of peptic ulcer, carcinoma of the stomach chronic nonspecific enteritis and enterocolitis, intestinal obstruction, chronic ulcerative colitis and carcinoma of the colon.

The editor is to be congratulated for making available in such an exemplary way the transactions of this special postgraduate course in gastroenterology. Those physicians interested in the specialty will feel especially indebted to him. From the publisher's standpoint, the book is of high quality.

Graduate Study in Health Education, Physical Education and Recreation: A Report of the National Conference on Graduate Study in Health Education, Physical Education and Recreation Pere Marquette State Park, Illinois, January, 1950. Paper, $1. Pp. 31. The Athletic Institute, 209 S. State St., Chicago 4, 1950.

This is a report of the national conference held during January 1950 on graduate study in the three allied areas mentioned in the title. Leaders in school health education, physical education and recreation, along with consultants of national reputation in teacher education and graduate study, met together to consider programs and policies which would lead to upgrading of advanced professional preparation. Specifically, the conference was concerned with setting forth principles and standards for evaluating graduate offerings in school health education, physical education and recreation, developing plans for implementing these standards and principles and recommending ways and means of using such standards for accreditation of institutions offering graduate preparation in these fields. The conference was a logical follow-up of a similar meeting in 1948 which proposed better patterns of undergraduate education in the same areas. The need for leadership in health education to parallel that available in medical research, clinical medicine and public health is clearly apparent, and the best type of leadership is needed in our schools and colleges. The closely related fields of physical education and recreation must also have high personnel standards if they are to make the maximum contribution to health and effective living. Faced with substantially the same problems with which medical education was confronted a generation ago, those concerned with preparation

of personnel in school health education, physical education and recreation are adopting tactics similar to those which served so well for medicine. This conference and its forerunner, the conference on undergraduate education in school health education, physical education and recreation, may well be significant steps toward bettering leadership in the three fields. Establishing principles and standards, however, is but one move in the direction of improving the quality of professional personnel. The real measure of progress will be found in how effectively these principles and standards are transferred to practice. It now remains for individual colleges for teacher education, appropriate groups of such institutions and the professional associations to implement suitable methods of accreditation.

Patent Practice & Management for Inventors and Executives. By Robert Calvert, Ph.D., Vice President Technical Societies Council of New York, New York. With Foreword by Alan N. Mann. Cloth. $5. Pp. 371, with 4 illustrations. Scarsdale Press, Box 536, Scarsdale, N. Y., 1950.

Whereas it is true that professional ethics does not countenance remuneration to the physician from patents on surgical instruments, appliances and medicines, nevertheless a legitimate sphere of interest in the subject of patent procedures still remains. This manual of patent practice should prove of considerable value in providing basic information on the law. The author, a practicing patent attorney, discusses what to patent and when to patent it, the respective rights of employers and employees, the drafting of the patent application and its prosecution in the Patent Office, licensing of patents and their infringement. A justification for medical patents is offered and the patent policies of various educational institutions and government departments are described. The statement of the law is frequently interlarded with the author's helpful recommendations of proper action in the circumstances. The book is written in an attempt at a conversational tone although it frequently lapses, perhaps unavoidably, into legalistic terminology.

As the author acknowledges, patent law is not a science; indeed, its construction by the courts appears in constant flux. Because of this, other patent attorneys may dispute several of the interpretations and conclusions found in this volume. For a general picture, it serves a salutary purpose; for the specific problem—because the facts in no two cases in patent law are identical—its value is not as evident. The book contains a helpful glossary of terms, an appendix of forms, an index of cases and authorities and a subject index.

Doctor Tom Brown: Memories. By Jeannie Albert Brown. Cloth. $2.50. Pp. 103, with 22 illustrations. Richard R. Smith, 120 E. 39th St., New York 16, 1949.

In writing this volume of memories about her husband, Mrs. Jeannie Albert Brown has rendered a real service to the many students and friends of Dr. Tom Brown. Those who knew him personally will appreciate this intimate picture of their good friend, and those whose activities lie in fields other than medicine will discover the winning personality of a great physician.

Dr. Tom Brown ranks with that illustrious group of men who brought fame to the Johns Hopkins Medical School. A true product of Johns Hopkins, he received his college education at that university and later entered the medical school, where he graduated with the first class. He was associated with the institution throughout his life, first as a teacher of medicine and later as a member of its board of trustees. His kindliness and gentle approach to his patients, who had complete faith in him, together with the depth of his knowledge, made a lasting impression on the minds of his students and colleagues. During his lifetime, Dr. Brown was associated with many of the leaders in medical science, not in this country alone but overseas. In addition to his professional life, he was devoted to his family and found great delight in writing personal notes to his grandchildren and composing verses for them. Children outside of his immediate family circle were drawn to him, and he always found time to visit with them. The many interesting and personal anecdotes in this small volume will be an inspiration to students of medical history, and personal friends will appreciate Mrs. Brown's warm and sympathetic portrait of her husband.

The Comparative Anatomy and Physiology of the Larynx. By V. E. Negus, M.S., F.R.C.S., Surgeon to the Ear, Nose and Throat Department, King's College Hospital, London. With a Foreword by Sir Arthur Keith. Cloth. $6.50. Pp. 230, with 191 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1949.

In 1928, the author published a detailed study of the mechanism of the larynx based on original studies on the comparative anatomy of the larynx from the lowest forms of air-breathing animals to man. In the present volume the same material is rearranged in a more condensed form with the addition of a number of new illustrations.

The author begins by describing the larynx of the lungfish, a simple valve to prevent water from entering the lung. The addition of cartilages and muscles with special modifications of form and structure to subserve special functions in particular species is described. Thus animals whose safety depends on keen olfaction are provided with an epiglottis that reaches above the palate to direct the maximum air stream across the olfactory nerve endings. Animals who need speed and endurance for safety are provided with a wide larynx to permit maximum ventilation. Special modifications of the larynx to subserve particular needs of deglutition, as in snakes, or particular needs for large residual air spaces in aquatic animals, are described in detail with profuse illustrations.

Of particular interest are the chapters on the employment of sound as a means of communication and the adaptations of the larynx as a sound-producing mechanism. This book is well written and readable, and with the numerous excellent illustrations it forms both a reliable scientific reference work on the comparative anatomy of the larynx and a fascinating story of evolution.

Clinical Biochemistry. By Abraham Cantarow, M.D., Professor of Biochemistry, Jefferson Medical College, Philadelphia, and Max Trumper, Ph.D., Commander, H(S), USNR, Basic Science Coordinator, Naval Medical School National Naval Medical Center, Bethesda, Md. Fourth edition. Cloth. $8. Pp. 642, with 38 illustrations. W. B. Saunders Company, 281 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1949.

As in earlier editions, the authors interpret for the medical profession information obtainable in clinical laboratories by biochemical studies, but usually do not discuss the technic of these tests. They are chapters on metabolism of different types of foodstuffs and of elements, on functions of various organs, on the preservation of internal environment and on certain abnormal conditions.

Extensive revisions were made in the sections about regulation of acid-base balance, pigment metabolism in relation to jaundice, metabolism of various foodstuffs, thyroid function, adrenal function, absorption and storage of iron, parathyroid hormone, renal physiology, vitamins and experimental diabetes. The new material includes information on shock, thymol turbidity and flocculation, fatty liver, crush syndrome (lower nephron nephrosis), potassium in diabetes, alarm reaction, goitrogenic agents and recent methods of studying adrenocortical function.

All information is made easily accessible by the logical arrangement, a detailed table of contents and a full index, the chapter outlining the associated chemical abnormalities for various abnormal states, and the end sheets listing normal results for the common tests. The chapter on hormones and endocrine function is by E. E. Rakoff. The latest references cited in the bibliographies are from 1947.

Handbook of Bacteriology for Students and Practitioners of Medicine. By Joseph W. Bigger, M.D., Sc.D., F.R.C.P., Professor of Bacteriology and Preventive Medicine, University of Dublin, Dublin. Sixth edition. Cloth. $4.50. Pp. 547, with 109 illustrations. The Williams & Wilkins Company, Mount Royal & Guilford Aves., Baltimore 2, 1950.

The first edition of this book was prepared 25 years ago for students and practitioners of medicine to provide a work more concise than existing textbooks on bacteriology which would aid them in distinguishing "the more important from the less" important information available. The present edition, the first in 10 years, apparently published with the same intent, represents the most thorough revision; two chapters on chemotherapy have been added, and the chapters on immunity, intestinal bacteria, brucellosis, viruses and rickettsias have been

rewritten. The chapters on chemotherapy touch only superficially on the antibiotics; considerable space is devoted to methods for penicillin determinations.

The author states his obdurate unwillingness to accept or to utilize exclusively the nomenclature employed in Bergey's "Manual of Determinative Bacteriology," 1948, particularly when the latter is based "merely on grounds of priority." Such an attitude is unfortunate, since the problems of bacterial nomenclature can finally be resolved only by cooperation of all authors.

Although the book includes a few bacteriologic technics, for the most part these are sketchy and incomplete and therefore cannot be utilized as laboratory guides for bacteriologic or immunologic procedures. In this respect, the title "handbook" is misleading and the volume fails to compare favorably with "Practical Bacteriology, Hematology and Parasitology," by Stitt, Clough and Branham, or with the less comprehensive "Laboratory Methods of the United States Army," by Simmons and Gentzkow, laboratory reference books. The author recognizes these deficiencies and recommends the "larger" textbooks on bacteriology for more detailed information. Whether medical students outside the University of Dublin will find this volume useful for examination purposes, as a "cram" book, is uncertain.

American authorities will contradict the author's statements that for complete destruction of all bacteria one hour or more boiling is required, and that a temperature of 115 C. for 15 minutes should not be exceeded, owing to the harmful effect of high temperature on many forms of medium. Neither do they consider that chemical agents effect complete sterilization.

Short chapters describe the morphology, cultural characteristics and pathogenicity of the commoner disease-producing micro-organisms, protozoa and fungi.

The Sexual Criminal: A Psychoanalytical Study. By J. Paul de River, M.D., F.A.C.S., Criminal Psychiatrist and Sexologist, Los Angeles Police Department. Cloth. $5.50. Pp. 281, with illustrations. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Illinois, 1949.

One of the more sordid aspects of medical practice is that related to the treatment of men, women and children who are victims of sexual criminals. "Beast" would seem to be a more appropriate term for some of these persons but psychiatric and other studies are revealing some of the causes for such abnormalities. The sexual criminal poses a perplexing problem for society and the medical profession. Knowledge of his habits and motivations are important. Although criminal attacks usually arouse more desire for retaliation than for treatment, penal institutions probably will not solve these problems.

The author presents case reports and explanatory comments which reveal in detail the aberrant actions of the sexual criminal. It is difficult to read such a book without resultant disgust, and yet such reports must be studied carefully if the problem is to be controlled. Dr. de River has presented vividly some of his experiences. The book will be interesting to physicians, lawyers, educators and police personnel.

Cancer: A Manual for Practitioners. Published by the American Cancer Society (Massachusetts Division), Inc. The Committee on Publication: Ernest M. Daland, M.D., Chairman, and others. Second edition. Cloth. $2. Pp. 308. The Society, 462 Boylston St., Boston 16, 1950.

It has frequently been said that the best cancer detection center is the office of the general practitioner. Every physician, regardless of his specialty, should be alert to the fact that every patient he sees is a potential cancer victim. He may be the first to see the early signs, and if he is aware of the significance of what he sees and knows the proper methods of handling such cases, many lives may be spared even though definitive treatment may have to be given by others. To promote this awareness and to outline accepted methods of treatment, the Massachusetts Division of the American Cancer Society published a small manual on cancer in 1940. The first edition of this manual proved so popular, and advances in diagnosis and treatment have been so rapid, that the second edition, published 10 years later, has been completely rewritten and a number of new chapters have been added.

The book is concerned with principles of diagnosis and treatment of cancer, and no attempt is made to go into details of surgical, radiologic or other forms of treatment. The contributing authors have approached the problem in a practical manner, and the book is well integrated through careful editing. The first seven chapters deal with historical concepts and general principles of diagnosis and treatment. There follow a number of chapters on cancer of specific organs or sites, and the last section of the book deals with special procedures in the care of the patient with cancer and concludes with a brief outline of the programs of the various state, federal and private agencies concerned with cancer control.

Although this volume is intended for the physicians of Massachusetts, it should be used by all general practitioners and can well serve as a model for other efforts in the education of physicians. The volume could be made even more useful if it were provided with an index.

The Fundamentals of Personal Hygiene: Their Practical Application to Healthful Living. By Walter W. Krueger. Fifth edition. Cloth. $3. Pp. 284, with 53 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2. 1950.

A wealth of practical information and guidance is contained in this fifth edition, which encompasses virtually all aspects of health education in a compact, yet entirely adequate manner. The author uses a friendly and, at the same time, convincing style of presentation that recommends the book to the average reader. Although intended primarily as a college textbook, it could be consulted with benefit by almost any layman.

After an introductory chapter, there is consideration of nutrition and its health aspects, followed by chapters on hygiene of the mouth and throat, posture, and care of the feet. A chapter on care of the skin is especially deserving of mention. In addition to consideration of mental health, there is an excellent discussion of hygienic aspects of sex. A chapter on health fads, fancies and follies provides reassuring evidence that some of medicine's battles against quackery are bringing results.

Almost all the chapters close with special features that include questions for classroom use, topics for specific reports and a bibliography. Physicians will find this book satisfactory for recommendation to patients who may wish to become familiar with basic health matters.

Progress in Biochemistry: A Report on Biochemical Problems and on Biochemical Research Since 1939. By Felix Haurowitz, M.D., D.Sc., Professor of Chemistry, Indiana University, Bloomington, Ind. Cloth. $7.50. Pp. 405, with 7 illustrations. Interscience Publishers, Inc., 215 Fourth Ave., New York 3; S. Karger, Holbeinstrasse 22, Basel, 1950.

This book was intended initially as a translation of the fourth (1948) German edition of the author's work, but in order to bring it up to date (through 1948), about a fifth of the book had to be rewritten; and in order to conserve space, material prior to 1939 was omitted, so that the book becomes a review of recent advances. Except for a chapter on antibiotics, the book is confined to work on humans and animals. The chief topics are the use of isotopes in biochemistry, biochemistry and metabolism of organic and inorganic constituents of the body, vitamins, hormones, enzymes, muscle contraction, excitation of nerves, immunochemistry, cytochemistry, biochemical methods, intermolecular forces in living matter, and thermodynamics and kinetics. In all cases, the author has started from known facts and related new facts and theories to these. The book is well printed.

The General Report of the Pharmaceutical Survey 1946-49. Edward C. Elliott, Director. Cloth. $6. Pp. 234. American Council on Education, 744 Jackson Place N.W., Washington 6, D. C., 1950.

A final summary report on the survey of pharmaceutic education conducted by the American Council on Pharmaceutical Education is given in this volume. The report includes those essential facts and other types of significant information which formed the basis of the survey's observations and recommendations. Analysis of problems associated with the pharmaceutic curriculum, faculty, students, the several branches of professional practice, examination and license, interprofessional relations

and the supply and demand for pharmacists is made. Recommendations for implementing the results of this study are set forth. They constitute the broad outlines of a long range program of action for the advancement of the pharmaceutic profession.

Chirurgie artérielle: Techniques—indications—résultats. Par G. Arnulf, professeur agrégé à la Faculté de médecine de Nancy. Préface du Pr René Leriche. Paper. 1200 francs. Pp. 248, with 79 illustrations. Masson et Cie, 120, Boulevard Saint-Germain, Paris 6e, 1950.

The book is divided into the following sections: general principles of arterial surgery, arterial ligatures, arterial sutures, arterial anastomoses, arterial grafts, arterial intubations, arteriectomy, periarterial sympathectomy and embolectomy.

In his introduction the author has not lost sight of the pioneer work done by Alexis Carrel, Halsted and Leriche. The opening section, dealing with the general principles of arterial surgery, consists of a discussion regarding some of the special armamentarium necessary for vascular surgery. The author also stresses the importance of practice on the animal before this type of surgery is attempted.

The chapter on arterial anastomoses includes a good section on arterio-arterial anastomoses. Figure 34, on page 92, shows a diagrammatic presentation of such an anastomosis. The steps are well depicted. It is in this section that the Blalock-Taussig operation and the operation of Potts are described. The author believes that the Blalock procedure is superior in younger infants. The arterial grafts section is especially well done. In a discussion dealing with the anticoagulants, namely, heparin and dicumarol®, the author lists his reasons for preferring heparin in vascular surgery, particularly stressing its immediate action.

The diagrams are too sketchy and oversimplified and might give the reader a false impression that such procedures as embolectomy and periarterial sympathectomy are too easily performed. An extensive bibliography dealing with each chapter is found at the end of the book.

The book is well written and reports not only various statistical data but also comments on some of the author's statistics and results in the various vascular lesions. It can be recommended as a good review of the subject and as a reference volume for those interested in vascular surgery.

Medicine of the Year: Second Issue 1950. Editorial Direction: John B. Youmans, M.D., Dean, School of Medicine, Vanderbilt University, Nashville. Internal Medicine, Hugh J. Morgan, M.D., Professor of Medicine, Vanderbilt University. Psychiatry, Franklin G. Ebaugh, M.D., Professor of Psychiatry, University of Colorado, Denver. Obstetrics and Gynecology, Frank Whitacre, M.D., Professor of Obstetrics and Gynecology, University of Tennessee, Memphis. Pediatrics, Mitchell I. Rubin, M.D., Professor of Pediatrics, University of Buffalo, Buffalo, N. Y. General Surgery, Warren H. Cole, M.D., Professor of Surgery, University of Illinois, Chicago. Cloth. $5. Pp. 204. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1950.

This excellent summary of progress in medicine for the year 1950 differs from the usual review of progress in the field in that it makes no pretense of full coverage and by the fact that comments are the highly individualized opinions of a competent group of specialists.

The main subject divisions are internal medicine, psychiatry, obstetrics and gynecology, pediatrics and general surgery.

This book is not valuable as a textbook but should be of help the general practitioner in obtaining a broadened view of the advances in medicine for the year and the specialist in maintaining an acquaintance with the new developments in other fields.

The material is presented in concise and clear manner. Sacrifices in the interest of brevity have at times been made, but if it is remembered that the discussion represents the highly individualized conclusions of the editors rather than conclusion on well established data, the brevity is no detraction. The editors candidly admit that some, if not much, of the material presented will appear in different perspectives as time progresses, but this should not detract from the value of the book as a whole.

The Art and Science of Nutrition: A Textbook of the Theory and Application of Nutrition. By Estelle E. Hawley, Ph.D., and Grace Carden, B.S. Third edition. Cloth. $4.75. Pp. 700, with 91 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1949.

This textbook is simply written and is valuable for nurses, college students and others who are concerned with nutrition and dietetics. It deals with the theory and application of the fundamentals of nutrition. Several chapters not regularly included in books on dietetics give this book a broader usefulness than would otherwise be the case.

The book is divided into four main sections, the first dealing with basic nutrition. The other sections are concerned with the food requirements of special groups of persons and conditions, diet therapy and teaching methods. The plan of teaching outlined by the authors is clear and concise and should be of great assistance to instructors in outlining student courses. There is a selected bibliography and an appendix of practical supplemental information. Also included is a short section of questions that may be used for a general review at the end of a student's course in nutrition. Most of the questions require thoughtful answers by the students rather than the simple recitation of information learned by rote.

The physician will find this book useful in schools of nursing. Specifically it deserves the thoughtful attention of directors of nursing schools when considering the choice of textbooks.

Colitis ulcerosa grave: Microbiología, anatomía patológica, patología general, radiología, tratamiento médico-quirúrgico y tratamiento dietético. Sociedad argentina de proctología, Primeras jornadas argentinas de proctología. Paper. Pp. 189, with illustrations. Editorial Vergara, Loria 60, Buenos Aires, 1950.

This book contains the papers read at the First Argentinian Congress of Proctology, which took place in Buenos Aires in April 1947. The subject, ulcerative colitis, was divided into etiology, pathology, symtomatology, radiology and treatment, each part being presented by one of a group of professors of the School of Medicine of the Buenos Aires University. Dr. J. Arnold Bargen commented on most of the work, but there were also several contributions by American, English and South American authors.

In general, there is little that could not be found in a textbook of medicine, although the presentations of Barzizza, Bianchi, Bonorino and Maissa are clear, well organized and rather thorough. The contributions on the surgical aspect of the disease are also good. Dr. Gutierrez-Blaveo presents a group of 20 cases thoroughly studied, and Dr. Napp offers an excellent analysis of the role of surgery in ulcerative colitis. Most of the other papers are based on a small number of observations, and some are poorly presented. For instance, Nasio in his "Contributions to the Medical Treatment of Ulcerative Colitis" states that diethylstilbestrol, in association with ascorbic acid, effects a healing action on the lesions of the colon, and yet he presents a series of 42 cases that have received several other treatments in addition to the "hormonal-vitaminic medication," as he calls it. Since this congress took place over three years ago, there is no mention of the recent contributions to the problem of ulcerative colitis, such as lysozyme and pituitary adrenocorticotropic hormone (ACTH).

The binding is rustic and the type is clearly legible. There are few illustrations except for some roentgenograms and diagrams. The illustrations in general are fair. There are only two papers with bibliographic references.

Annual Review of Microbiology. Charles E. Clifton, Editor, Sidney Raffel and H. Albert Barker, Associate Editors. Volume III. Cloth. $6. Pp. 476. Annual Reviews, Inc., Stanford, Calif., 1949.

These reviews were planned to cover the more active fields of research in microbiology and intended to be critical appraisals rather than mere compilations of the literature. Different reviewers are engaged for the same subject each succeeding year in an attempt to vary the approach.

The present volume includes reviews on bacterial variation, the actinomycetes, ciliated protozoa, metabolism and nutrition of micro-organisms, constituents of viruses, dermotropic viruses, bacteriophage, chemistry of toxins, in vivo actions of antibiotics,

virulence and pathogenicity, growth of bacterial cultures, cellular basis of immunity, types of acquired immunity against infectious disease, oral and food microbiology, chemistry of toxins, the nature and variability of disease resistance in plants and recent developments in microbiologic technics.

In a work of this limited size, subject coverage cannot be comprehensive and should be augmented with more complete abstract material. Nevertheless, the reviews are valuable reference material and for the most part are interestingly presented, well edited and adequately documented. They are highly recommended to persons engaged in the field of microbiology.

Penicillin and Streptomycin in the Treatment of Infections. By Chester S. Keefer, M.S., M.D., Sc.D., Wade Professor of Medicine, Boston University School of Medicine, Boston, and Donald G. Anderson, M.D., Instructor in Medicine, Boston University School of Medicine, Boston. Edited by Henry A. Christian, A.M., M.D., LL.D. (Reprinted from Oxford Loose-Leaf Medicine with the Same Page Numbers as in That Work.) Second edition. Cloth. $2.50. Pp. 938(201)-938(310). Oxford University Press, 114 Fifth Ave., New York 11, 1950.

Two chapters from Christian's Oxford Loose-Leaf Medicine have been reprinted in monograph form. The first, on penicillin, is an extensive, though not overly long, discussion of the clinical use of this antibiotic in the wide variety of infections in which it has proved useful. Information on chemistry and pharmacology of penicillin is also included. The second chapter discusses the use of streptomycin in a similar fashion.

This monograph is written for the general practitioner and is therefore practical in its approach. It can well be used as a guide for all physicians, whether in general practice or pursuing a specialty. The material is well organized and effectively presented. The only serious criticism that can be made concerns the brief and incomplete mention of the problem of development of bacterial resistance to streptomycin. More emphasis should perhaps be placed on the necessity for sensitivity studies on organisms isolated from patients who fail to respond satisfactorily, even though initial studies showed the organism to be sensitive. The volume can, however, be recommended as an authoritative source of practical information on the clinical use of these two antibiotics.

The Premature Baby. By V. Mary Crosse, O.B.E., M.D., D.P.H., Full time Officer, Birmingham Regional Hospital, Birmingham, England. With Foreword by Sir Leonard G. Parsons, M.D., F.R.C.P., F.R.C.O.G. Second edition. Cloth. $2.75. Pp. 167, with 14 illustrations. The Blakiston Company, 1012 Walnut St., Philadelphia 5, 1950.

The chief value of this small book is that the problems of prematurity are presented in a simple and easily understandable style. A simple approach is stressed throughout the book, which will make it of particular interest to students and nurses. The section dealing with nursing care in the hospital and in the home is particularly well done. American readers will be puzzled by some of the terms used, such as the frequent reference to "booked" patients, "treasure cots" and "mackintosh" sheeting. It is also disconcerting to run across recommendations such as sprinkling tea leaves on the floor before sweeping and the use of sherry-whiskey mixtures in the treatment of dehydration. It is stated in the preface that the use of replacement transfusions is discussed. This discussion is limited to two sentences, and one could not agree with the statement that "replacement transfusions . . . have not given sufficiently improved results to warrant encouraging their use." Part of the author's purpose seems to be the teaching of methods that any midwife can employ when called on to nurse a premature baby in its own home. This book fulfils this purpose; however, it cannot be recommended to specialists in pediatrics.

A Manual of Physical Therapy. By Richard Kovács, M.D., Professor of Physical Medicine, New York Polyclinic Medical School and Hospital, New York. Fourth edition. Cloth. $3.75. Pp. 328, with 124 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1949.

The fourth edition of this book, like its predecessors, is a storehouse of stimulating and valuable information. The newer material, such as that on the magnetron, on corrective therapy, rehabilitation and therapeutic exercise, seems especially interesting and is well illustrated. The older and more fundamental portions, by contrast, seem to have suffered from neglect. In the historical chapter, a student might easily be misled by the statement ascribed to Hippocrates that cold water warms the body, by the quotation from Floyer to the effect that cold strengthens the fibers of the heart and by the sweeping assertion that every Roman house had a solarium. In the introduction to galvanic current, likewise, a student may be misled by the opening statement that the galvanic current "consists of an interrupted, unidirectional flow of electrons" and by the listing of wall plates as the "simplest types of galvanic generators." On page 99 the symbol for a battery is in error. On page 102 the diagrams do not make clear the intended (but erroneous) distinction between alternating and sinusoidal current. It takes more than a diagram, incidentally, to make this clear, for sinusoidal is a special case of alternating current, so that it is like distinguishing between "lion" and "animal." On page 202 begins a description of the hydrogalvanic bath, whose benefits are questionable. On page 289 is an apathetic discussion of ischemic contracture; since this distressing condition can develop so quickly and can so easily result from the misapplication of bandages and splints by inattentive or untrained personnel, a more emphatic warning would be in place. On page 215 there is mention of the sphincter of O'Beirne, which is presumably the same as the pelvirectal sphincter described in current textbooks of physiology; the latter term is preferable for several reasons. These flaws have been pointed out partly because in a book which so many people accept as authoritative accuracy becomes especially important and partly because in some instances the confusion noted is typical of that encountered in the literature of physical medicine. As a whole, the book is attractive, readable, inspiring and valuable.

R. Shabtai Donnolo (913-985). First Section: Medical Works on the Occasion of the Millennium of the Earliest Hebrew Book in Christian Europe. Edited with a Commentary by Suessman Muntner. Second Section: Contributions to the History of Jewish Medicine by Suessman Muntner. [In Hebrew]. Half-cloth. Pp. 147; 208. Mosad Haraw Kook, Jerusalem, 1949.

The book deals with the works of Shabtai Donnolo, who lived in Southern Italy during the tenth century. Donnolo was the commentator of "The Book of Creation," the oldest cosmographic work in Hebrew. He also wrote the oldest pharmacopeial work in Hebrew. The latter is one of the oldest documents relating to the beginning of the first university in Europe—that of Salerno. Muntner has reproduced Donnolo's text with many comments of his own and a glossary of the terminology used by Donnolo. He has also added a section on the life of Donnolo and a discussion of the Jewish contributions to medicine and other sciences in the Middle Ages, particularly in Italy. The book also includes four maps and several illustrations. Dr. Muntner is a well known authority on Jewish medical history; his work is therefore authoritative. The book is of great value to those who are interested in medical history of the Middle Ages and who possess a knowledge of the Hebrew language.

Die Insulin-Lipodystrophie. Von Prof. Dr. Ferdinand Adalbert Kehrer, Direktor der psychiatrisch-neurologischen Klinik der Universität Münster i. Westf. Paper. Price, $1.50. Pp. 50, with 9 illustrations. [Grune & Stratton, 381 4th Ave., New York 16]; Georg Thieme, Diemershaldenstrasse 47, Stuttgart-O, 1949.

A review of all related literature in the German language is presented in this book. It does not contain any original work and one case is reported. The English literature is noted only inasmuch as it had already been cited in other German publications. The following conclusions are arrived at from the review of the literature: Atrophy and hypertrophy are the result of a combination of the fat-sparing action of insulin on the one hand (hence hypertrophy) and of the traumatic insults resulting in shrinkage of the connective tissue tracts of the adipose panniculus on the other hand (hence atrophy), both mechanisms being particularly marked in those persons who have a thick and increasing adipose tissue at the site of injection, as in women at the menopause, obese women generally and in growing children. The histology of the atrophic lesions has obviously not received consideration.

QUERIES AND MINOR NOTES

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

BILATERAL CATARACTS FOLLOWING PARATHYROID TETANY

To the Editor:—**A registered nurse, aged 46, had a thyroidectomy performed in July 1941. Two of the parathyroid glands were removed at the time of the operation. She entered the army in September 1942, after having passed a physical examination. She was sent to the European theater of operations in September 1943. While in England, January 1944, symptoms of tetany were observed for the first time. A blood test then revealed calcium 8 mg. and phosphorus 5.6 mg., per hundred cubic centimeters. The basal metabolic rate was normal. She was then treated with calcium gluconate, 1 or 2 tablespoons (15 to 30 cc.) a day without vitamin D. Further determinations of blood calcium and phosphorus were not done until November 1944, when double vision occurred. At this time, there were also a low blood calcium value and high phosphorus content. With double vision, opacity in each of the eyes was observed by the ophthalmologist, who designated it as "beginning pathology." Roentgen examination revealed calcium depletion of one of the femurs. The basal metabolic rate was normal. Intensive calcium and vitamin D therapy was instituted. However, this failed to prevent progressive disease, and a cataract of the left eye was removed in March 1948, followed by removal of a cataract from the right eye in May 1948. Does it necessarily follow, with removal of some of the parathyroid glands during a subtotal thyroidectomy, that if hypocalcemia is subsequently encountered cataract formation will result, regardless of proper therapy? Can clinical cases of hypoparathyroidism be cited to support the thesis that proper therapy and control, instituted early, will prevent cataract formation? What is the longest period of treatment coming under this category without resulting in cataract formation?**

Louis Schneider, M.D., Rochester, N. Y.

ANSWER.—The development of bilateral cataract is an almost invariable result of untreated tetany due to hypoparathyroidism. There is adequate evidence to support the statement that if hypoparathyroidism is recognized early and adequate treatment given thereafter, so that the concentration of calcium in serum is maintained within normal limits, cataract formation will be prevented. This statement is based on the fact that in patients with parathyroid tetany who have been adequately treated for periods of fifteen to twenty years cataracts have not developed. The tetany is usually permanent, and the treatment must therefore be given continuously. If treatment is omitted for only two or three months cataracts may begin to form. The patient whose case history is given probably had an unrecognized parathyroid tetany immediately after the thyroidectomy. If this is true, she had hypoparathyroidism during a period of two and a half years without treatment. Once cataracts have developed, they cannot be made to disappear with treatment. However, treatment appears to be fairly effective in preventing further development.

CHEMICALS IN THE ATMOSPHERE

To the Editor:—**What concentration of sulfur dioxide, sulfur trioxide and fluorine in the atmosphere is safe for persons to breathe without producing coughing, bronchial irritation, lacrimation and nasal discharge? An early reply will be appreciated.**

John B. Thompson, M.D., Columbus, Ga.

ANSWER.—Data are not available to permit a definitive answer to the question. According to standards of permissible concentrations in the atmosphere of the chemicals enumerated the following figures, based on an exposure of eight working hours per day, are given: Sulfur dioxide, 10 to 20 parts per million parts of air, and sulfur trioxide, 1 to 5 mg. per cubic meter of air. (Any figures on this chemical have to be regarded as only approximate because the chemical is extremely unstable and in the presence of extremely small quantities of water transformation into sulfuric acid occurs.) It is assumed that the inquiry about fluorine concerns the substance in its gaseous rather than particulate form, and figures are given for safe concentrations varying between 1.5 and 3.0 parts per million parts of air.

It is important to emphasize that the foregoing figures are stated with reference to exposure for an eight hour working day, assuming that good ventilation exists and that other precautionary measures are in existence and properly supervised. For information on the permissible concentration of this substance in community atmosphere, one should apply to his state department of health.

TOXICITY TO LATEX

To the Editor:—**A white man aged 40 has had headaches for four months. He works in a bag factory in which liquid latex (latex in a solvent) is used to seal paper bags. This is highly atomized, and the patient believes that this might be the cause of his headaches. What is known regarding toxicity to latex or the various solvents used in that industry?**

Karl F. Stefan, M.D., Washougal, Wash.

ANSWER.—Properly speaking, latex is the milk or gummy exudation from a number of plants, the rubber tree being the best known. For stabilization purposes the latex milk is commonly treated with ammonium hydroxide or some ammoniacal substance. This treatment leads to an alkalized state and is said to free latex from certain skin irritants or sensitizing properties. In the manufacture of synthetic rubbers it is possible to produce an artificial latex, which represents only a lower degree of polymerization. On a less proper basis the term latex is sometimes applied to a solution of gum rubber, although latex itself with a content of antioxidant and stabilizer is frequently used for adhesive purposes. The best solvent is benzene, but use of this is usually avoided because of its high toxic properties. At present high test gasoline is in wide use, with or without a content of naphtha, toluene and traces of xylene. Various other rubber solvents may be employed in low quantities, such as carbon tetrachloride, turpentine and carbon disulfide. It is unlikely that latex itself or as treated with ammoniacal agents would induce headaches. Some of the hydrocarbons mentioned, including gasoline, are known to produce headaches on occasion. If benzene, carbon tetrachloride or carbon disulfide is present, a higher degree of damage might result, necessitating special medical examinations.

CONCENTRATION OF LIVER EXTRACTS

To the Editor:—**I would like to know how to judge the quantity of U. S. P. units of liver in drug preparations which are purportedly for oral use, e. g., lirimin® capsules of Sharp & Dohme. Many of the oral liver preparations have a stated weight component of liver concentrate but no information as to their value in U. S. P. units. I want to be able to judge the U. S. P. unit value of oral preparations, not the weight content of the liver.**

M.D., California.

ANSWER.—This is a vexatious problem, since the only method of ascertaining the U. S. P. unit value of a given liver and/or stomach preparation is by standardization in the human being. Thus, a U. S. P. oral unit of liver (or stomach) concentrate is the amount required to give the desired daily reticulocyte response in known cases of pernicious anemia in relapse.

Lirimin* contains 150 mg. per capsule of a liver-yeast concentrate which is not official and which has not been standardized by human assay. Therefore it would be impossible to judge the quantity of U. S. P. units in the preparation. Other preparations intended for oral use make label statements as to weight content of concentrates derived from given weights of liver or stomach. The antianemic potency of these preparations also cannot be evaluated, because they have not been standardized by human assay. It is possible that several types of liver concentrates may be included in the forthcoming National Formulary. These products are not intended for the treatment of pernicious anemia and are considered only as sources of riboflavin, nicotinic acid and choline.

RENAL TUBERCULOSIS

To the Editor:—**Is paraaminosalicylic acid effective in renal tuberculosis? A patient having one kidney had a course of streptomycin therapy for two months; previously positive cultures became negative. His physician is now giving him paraaminosalicylic acid.**

Bernard Marcus, M.D., Raritan, N. J.

ANSWER.—Paraaminosalicylic acid is being used as an adjunct to streptomycin treatment in various types of tuberculosis, including the renal form. It has shown promising effects and is particularly helpful in cases with streptomycin resistance or in which prolongation of streptomycin therapy is contraindicated for other reasons.

ALCOHOLIC INTOXICATION

To the Editor:—**All physicians are questioned frequently concerning the effects of drinking. Answers usually center around vitamin B starvation and pyschic changes, but this is not satisfactory. What are the actual effects of alcohol on the body in the absence of diminished food intake? Where is the border between safety and physical damage? Is intoxication harmful?**

Ellis M. Markell, M.D., Harrison, N. Y.

ANSWER.—All the acute effects of alcohol (degrees of intoxication up to coma and death) can be induced in a well nourished person and are therefore not dependent on malnutrition. They are primarily due to progressive depression of the nervous system, the cerebral cortex being the most sensitive to this drug, as is the case with such drugs as ether. The chronic effects of persistent consumption of alcohol (alcoholic addiction) cannot be or have not yet been separated from the chronic effects of malnutrition, as these persons when drunk invariably do not eat enough of the known food essentials, including the vitamins. The instability of the nervous system in persons in delirium tremens and the higher percentage of cirrhosis of the liver in the chronic alcoholic addicts, their decreased resistance to many infections, and their shorter life span cannot as yet be ascribed to a direct action of alcohol on the body organs, even though it is known that the normal functioning of the nervous system (the voluntary and involuntary) is essential for the normal activity of many, if not most, of the organs of man's body. Intoxication is unquestionably harmful, at least temporarily, for the individual and for society, since it prevents normal behavior, including eating. The border of safety (as to behavior and chronic physiologic damage) in the matter of alcoholic consumption is moderation: one should never consume enough alcoholic beverages to become intoxicated.

ESOPHAGEAL VARICES

To the Editor:—**How early may esophageal varices, with or without fatal rupture, occur in acute infectious hepatitis without cirrhosis? How frequently does diaphragmatic hernia cause esophageal varices?**

Meyer A. Rabinowitz, M.D., Brooklyn.

ANSWER.—As far as can be determined, esophageal varices do not occur in acute infectious hepatitis in the absence of antecedent liver disease. Hematemesis during the course of acute hepatitis and as a result of that disease is due to the general hemorrhagic diathesis occurring from pronounced prothrombin deficiency in acute and subacute hepatic necrosis.

Diaphragmatic hernia must be considered a rare cause of esophageal varices. Sahler and Hampton (*Am. J. Roentgenol.* **49**: 433 [April] 1943) studied 221 cases of diaphragmatic hernia in which 32 patients had gastrointestinal bleeding. Bleeding was ascribed to peptic ulcer in the herniated stomach, concomitant duodenal ulcer or gastritis. In no case were esophageal varices noted. Ohler and Ritvo in a complete discussion of the diaphragmatic (hiatus) hernia problem (*New England J. Med.* **229**: 191 [July 29] 1943) make no mention of esophageal varices as a complication. Bock and co-workers (*New England J. Med.* **209**: 615 [Sept. 28] 1933) review a complete study of 10 cases of hernia with hemorrhage. Surgery or autopsy in five of these cases revealed no demonstrable lesion. These authors postulate bleeding arising from the gastric mucosa of the hernial sac due to venous stasis as a result of compression of the sac by the hiatal ring. In none of the cases were esophageal varices found. Neither Bockus nor Portis in their textbooks of gastroenterology make any note of esophageal varices as a complication of diaphragmatic hernia.

EFFECTS OF SWALLOWING BOX OF MATCHES

To the Editor:—**What are the possibilities of phosphorus poisoning in a man who has swallowed a box of matches while intoxicated?**

M.D., California.

ANSWER.—This query fails to indicate the size of the box of matches or the number, type or color of the matches. It is not clear whether the box itself or only the content was swallowed. This reply is therefore conditioned to these uncertainties. Although a trace of yellow phosphorus may be present in matches or on the striking surface, the total quantity is ordinarily well below significant levels. Phosphorus sesquisulfide, if present, is seldom harmful. Several coloring agents for matches are conducive to methemoglobinemia, and this probably would be facilitated by alcohol. Various agents, such as antimony trioxide, potassium chloride, maganese dioxide and glue, may be conducive to gastritis but possibly of lower order than that from excessive alcohol itself. If a fair degree of mastication took place, prospective mechanical damage from wood cellulose would be decreased thereby. Methemoglobinemia is likely to represent the chief affront.

ALLERGY TO TOBACCO SMOKE

To the Editor:—**Six years ago I noticed an increasing intolerance to tobacco smoke. Sensitization acquired at that time has gradually progressed until slight concentrations in the air are sufficient to produce a reaction. The earliest symptom is a persistent sensation of tightness or constriction in the chest. Further exposure leads to rhythmic darting pains which radiate into both shoulders. If the exposure is moderately heavy or prolonged there occur fairly violent and repeated spasms of pain substernally, with or without precordial constriction. Occasionally there may be radiations of pain from the chest into the neck and jaw and along the inner side of the left arm. There is often an accompanying increase in pulse rate and some rise in blood pressure. There is a gradual relief of symptoms when I go into fresh air. The smoke from pipes and cigars produces the most severe and prolonged reactions, that from the milder cigarets or from burning wood, frying fat and hot air furnaces, less severe reactions. Some symptoms may persist for hours after removal from contact. The dust in houses and the emanations from bedding, clothing and drapes that have been exposed to smoke produce the same reactions and tend to keep tolerance at a low level. With prolonged exposure to smoke, dust or bedding there is a residual left chest soreness persistent for several days, even after subsidence of other symptoms. Tolerance is increased in the summer. In cold weather there is seldom any complete relief. There has never been any mental upset. I am in the early forties and do not consider myself neurotic. My health in general has been good and I have always been active in sports. General examination, roentgenograms (gastrointestinal and chest) radial arteries, eye grounds, electrocardiograms, basal metabolic rates and results of serologic tests have been normal. Skin tests show reactions to house dust and to tobacco. Smoke tests have not been made. Vasodilators and antihistaminic drugs have been tried with some relief, also frequent change of bedding and wearing surgeon's mask in bed. Dust antigen injections have produced some increase in tolerance, but complete relief is obtained only in fresh air. Is there any antigen on the market made from tobacco smoke which could be used for testing and treatment?**

Allston H. Fogg, M.D., White River Junction, Vt.

ANSWER.—Allergy to tobacco smoke may be a distinct clinical entity. Positive skin tests with tobacco smoke extract as well as passive transfers have been obtained by D. M. Pipes (*Ann. Allergy* **3**:227, 1945). Since there are so many substances in tobacco smoke (nicotine, pyridine, collidine, ammonia, hydrocyanic acid and carbon monoxide) which nullify the specificity of a positive skin reaction, little can be gained from testing patients with tobacco smoke. This does not preclude the possibility that allergy to one or several of these substances, especially nicotine, may be present. Allergy to simple chemicals may exist with or without positive skin reactions.

Smoking or inhalation of tobacco smoke may provoke allergic reactions in the cardiovascular as well as in the respiratory system in persons whose heart and blood vessels or lungs are hypersensitive (shock tissues). In the heart they are characterized by angina pectoris, electrocardiographic abnormalities and various reactions in systemic vessels, such as vasoconstriction, increase in heart rate and rise in blood pressure. (Herrel, W. E., and Cusik, P. L. *M. Clin. North America* **23**: 1033, 1939; Harkavy, J.: Vascular Allergy, *Clinics* **5**:504, 1946). Permanent arterial changes from repeated constriction depend on the degree of vascular hypersensitivity, and the duration and amount of nicotine and/or tobacco to which one is exposed.

The allergic response to tobacco or smoking in the respiratory tract consists of vasomotor rhinitis, asthma and cough as well as variants thereof. The reactions in the lower part of the respiratory tract may be accompanied by a sensation of tightness in the chest or precordial constriction and pain with radiations comparable to those in coronary artery disease. The nicotine in the tobacco smoke may stimulate the sympathetic nerves arising from the left upper thoracic chain, the first to fifth thoracic vertebrae, which supply the heart as well as the lungs. An occasional overflow of such stimulation may involve the lower cervical sympathetic nerves and the trigeminal nerve, accounting for the radiation of pain into the neck and jaw. This autonomic excitation leads to vascular spasm as well as bronchial constriction, the latter suggesting the participation of the parasympathetic nerves (vagus) in the general response.

Since the inquirer states that his physical condition is good and an electrocardiogram is interpreted as normal, the presenting symptoms would seem to be referable to the respiratory tract rather than the heart. However, it would be advisable to take an electrocardiogram during exposure to tobacco smoke. The reactions to smoke from burning wood and frying food may be due to irritation of pungent gaseous substances some of which are ill defined, such as sulfur dioxide and acrolein resulting from oxidation of fats (glycerin in cigarets) in the former and oxidation of fatty oils in the latter. The mechanism may be that of an irritant and/or allergenic in nature. Obviously it is advisable to avoid smoking and exposure to tobacco smoke. For immunization, since there is no tobacco smoke extract on the market, it may be prepared by bubbling exhaled smoke through Coca's extracting fluid and sterilizing by Berkefeld filtration. If this fails, tobacco extract which is readily avail-

able may be used. Smoke from burning wood or coal should be avoided by living in a steam-heated house. It would be advisable to install a precipitron® apparatus, manufactured by Westinghouse, which precipitates dust as well as smoke. Feather pillows should be replaced by foam rubber pillows and mattress, which can be washed and aired readily. Treatment with antihistaminics and vasodilators may be augmented with aminophylline given parenterally, orally or in suppository form.

SAFETY IN OPERATING ROOMS

To the Editor:—**We have in our city lately the problem of safety in operating rooms. My particular problem is that of using an operating room solely for purposes of eye, ear, nose and throat surgery. The anesthetics are for the most part local. When general anesthesia is used, open drop ether is administered by hand on mesh on open cone and followed by maintenance with a compressor blowing air through an ether bottle and into a mouthpiece. Cyclopropane or ethylene is not kept in the hospital. Thiopental sodium (pentothal sodium®) is occasionally used, and oxygen inhalators are kept at hand. The question has been whether or not installation of vapor-proof fittings in the wall, vapor-proof enclosures for the lights and vapor-proof switches on the ether machines themselves, instead of the plain toggle switches that are supplied by the manufacturers, constitute a necessary measure for safety. Our particular operating room has been in use for twenty-five years with an average of an operation per day over that entire period, and there has never been an anesthetic accident of any sort. I would like to have an expert opinion on the necessity for the vapor-proof fittings and on the ether concentrations and flash point levels that determine the advice given. We do not want to be in the position of putting on an asbestos suit to strike a match.**

Edwin M. Shepherd, M.D., Charleston, W. Va.

ANSWER.—Many problems arise when the attempt is made to insure that the physical characteristics of the operating room and the operating conditions are such that the possible sources for ignition of combustible anesthetic agents are absent. These problems concern, first, the desire of physicians and hospitals to assure the safety of the patient and, second, the necessity for hospitals and physicians to protect themselves legally by fulfilling the requirements of their local building code for operating rooms. There is no uniformity between the building code of one community and that of another. Some codes are too lenient and many are too strict by present day standards. Many hospitals are forced by the obsolete, strict codes to embark on expensive and unwarranted reconstruction of operating rooms, for no other reason than the continuing threat of legal persecution under these codes.

The National Fire Protective Association, in its code for hospital operating rooms, gives the latest authoritative recommendation for safeguards against explosions and flash fires. It represents a considerable relaxation in standards from previous codes and from the strict local building codes.

It is not considered necessary by current thinking to vapor-proof electrical outlets, switches or lights which are located 5 feet (152 cm.) above floor level. Electrical apparatus below this level, and particularly near the floor, may be an ignition source from sparking unless vapor-proofed. The ether vaporizing machine is commonly used in most hospitals and seldom has a vapor-proofed switch and motor. However, this apparatus is potentially dangerous because of its usual close proximity to the ether-laden expirations of the patient. Such a machine should have a vapor-proof switch and a vapor-proof motor. According to surveys, ether is the most dangerous of all combustible anesthetic agents, accounting for about 50 per cent of the explosions and flash fires reported.

PREMATURE RUPTURE OF THE MEMBRANES

To the Editor:—**An infant born during the third trimester of pregnancy weighed 4 lb. 7 oz. The child now has congenital spastic diplegia. The mother is known to have suffered a premature rupture of the membranes three weeks before labor began. Are infants likely to suffer damage from such an accident? Should the uterus be emptied after the loss of amniotic fluid? If so, when?** **C. S. Meeker, M.D., Butte, Mont.**

ANSWER.—Premature rupture of the membranes has practically no effect on the newborn baby; however, should an intrauterine infection follow rupture of the membranes, it is possible for the infection to result in death of the baby. There is no serious harm in most cases from a dry labor. In nearly all cases in which the membranes rupture, labor sets in within 24 hours after the rupture, but there is no danger in waiting for the spontaneous onset of labor even if several days elapse after the rupture of the membranes. Generally, however, it is advisable to give very small doses of pituitary extract, preferably by intravenous drip, if pains fail to begin 24 hours after the membranes have ruptured. There is no indication whatever for forcible empting of the uterus after the loss of amniotic fluid.

NEURITIS INDUCED BY PENICILLIN

To the Editor:—**In November 1948 I had a patient with partial peripheral paralysis of the radial nerve following three intramuscular injections of 500,000 units of sodium penicillin given alternately in each arm at the usual place. One arm only was affected by the paralysis. Since then the patient pretends that she has not recovered from the neuritis, and physicians whom she has consulted sustain that pretense, stating that the paralysis is hopeless. Kindly answer the following questions. 1. Can penicillin be injected in the arm instead of in the buttock? 2. Is penicillin considered as toxic to the nerves directly or indirectly. 3. What is the prognosis of such neuritis? Can you send me data on the issue?**

A. Hanania, M.D., Bagdad, Iraq.

ANSWER.—Penicillin can be injected in the arm; it should be injected deep into the deltoid muscle, and every attempt should be made to prevent injection or infiltration of a nerve. Penicillin is toxic when injected directly into nerve tissue. The prognosis of the neuritis produced by injury to nerves is poor. The literature on the effects of penicillin on the nervous system is summarized by A. E. Walker and H. C. Johnson, (Penicillin in Neurology, Springfield, Ill. Charles C Thomas, Publisher, 1946). Other references include T. R. Broadbent, G. L. Odom and B. Woodhall: Peripheral Nerve Injuries from Administration of Penicillin: Report of 4 Clinical Cases (*J. A. M. A.* **140:** 1008-1010, [July 23] 1949) and Donald B. Matson: Early Neurolysis in the Treatment of Injury of the Peripheral Nerves Due to Faulty Injection of Antibiotics (*New England J. Med.* **242**:973-975, 1950).

BRAIN WEIGHT

To the Editor:—**I should like to know the weight of the brain of the white race, the yellow race and the Negro race.** **M.D., New York.**

ANSWER.—Comparison of brain weights in different races would be satisfactory only if the weights were ascertained everywhere by the same methods and with subjects of the same age. Such figures are not now available, so the average weights listed below are only approximately accurate. Bardeleben's "Handbuch der Anatomie des Menschen" gives figures which are probably as reliable as any. They are not stated in terms of white, yellow and black races, but in terms of European, African and Asiatic races, with special figures for the Chinese and Japanese.

The estimate of the average weight of the brain, in grams, is as follows:

	European	African	Asiatic	Chinese	Japanese
Male	1,350	1,293	1,304	1,357	1,337
Female	1,216	1,183	1,194	1,239	.....

Cunningham (English), and Morris (American), each give an average weight—male, 1,360 with females slightly less because of their smaller bodies.

EPISACROILIAC LIPOMAS

To the Editor:—**Please discuss so-called episacroiliac lipomas as a causative factor in low back pain.** **G. D. Gregory, M.D., Chicago Heights, Ill.**

ANSWER.—Episacroiliac lipomas or episacral lipomas are small rounded fatty tumors located deep in the adipose tissue of the lower back. These masses result from herniation of fatty tissue through rents of the fascia or vascular foramen of the deep fascia, the result of direct injury, tearing or fascial atrophy. The fatty mass may become necrotic if its source of nutrition is restricted at the point of herniation. Small sensory branches of the posterior lumbar or sacral plexus usually accompany the perforating vessels and are in direct contact with the herniated fat mass. Pressure or the presence of necrotic tissue irritates the nerve, resulting in local tenderness and trigger points of pain referred to the lower back or sciatic areas. Digital pressure on the deep-seated mass may produce true sciatic symptoms.

Injection of the trigger point with 1 per cent procaine hydrochloride is helpful as a diagnostic as well as a therapeutic measure. Multiple punctures of the deep fascia may relieve the area of constriction at the point of herniation with lasting results. In more persistent cases, excision of the mass is indicated, together with enlargement of the foramen or its closure by suture. The possible presence of a sacroiliac lipoma should be kept in mind during any examination for low back pain or sciatica.

PENICILLIN AND THE HAIR

To the Editor:—**Will you please discuss the effects of penicillin on the hair?** **M. E. Connelly, M.D., Sharon, Pa.**

ANSWER.—A survey of the literature fails to disclose any direct effects of penicillin on the hair. Some infections that are treated with penicillin are associated with alopecia, but the loss of hair is related to the infection rather than to the treatment with penicillin.

SODIUM SALICYLATE

To the Editor:—For several weeks I have been incapacitated with pain in both hips and sacroiliac, aggravated by walking or standing. I have taken much natural sodium salicylate. Does prolonged use of salicylates have a deleterious effect on the blood? What treatment may be suggested?

J. J. Brosnan, M.D., Chicago.

ANSWER.—Although sodium salicylate in usual analgesic dosage (2 to 6 Gm. daily) may cause hypoprothrombinemia, this is seldom to a degree sufficient to result in hemorrhage. There are no other deleterious effects in this range of dosage, except that gastric irritation may be caused in susceptible persons. Treatment in this case will depend on accurate diagnosis. In addition to a careful medical and orthopedic examination, roentgenograms of the hips and lumbosacral region of the spine should be of assistance in determining the cause of the symptoms.

USE OF ANTICOAGULANT

To the Editor:—Has there been any extensive use of anticoagulants in the treatment of cerebral thrombosis and embolism? I have not used heparin or dicumarol® in my cases, partly because of the possibility of bringing on cerebral hemorrhage.

Clarence W. Olsen, M.D., Beverly Hills, Calif.

ANSWER.—There has been, so far as known, no extensive use of the anticoagulants in the treatment of cerebral thrombosis and embolism. There has been, in general, hesitation to undertake any such treatment early in the process because of the danger of increasing hemorrhagic response either to rupture of vessel or the production of an infarct by thrombosis or embolism. After the healing process has been well established and threat of further thrombosis or embolism remained, certain patients have been treated with anticoagulants, but there are not yet adequate data on the subject to provide assurance about the results.

CHRONIC CYSTITIS

To the Editor:—A man has had chronic cystitis with calculus formation for twenty years. Recently he underwent a suprapubic prostatectomy and did well for about eight months, when cystitis again developed. It was attributed to chronic diverticula of the bladder. His symptoms have not responded to the urinary antiseptics or to gantrisin,® (3,4-dimethyl-5-sulfanilamido-isoxazole), chloramphenicol (chloromycetin®) or aureomycin. Culture reveals Pseudomonas aeruginosa. Kindly indicate a therapeutic regimen. Have weak acetic acid irrigations ever been of value?

M.D., New York.

ANSWER.—In the case cited it would be worth while to try methenamine mandelate (mandelamine®) in large doses. Irrigations with acetic acid may be of temporary effect, but the risk of introducing further infection by repeated catheterization more than offsets the possible therapeutic value.

LOW KIDNEY FUNCTION TEST

To the Editor:—Is there anything to help patients with a persistently low value for the kidney function (phenolsulfonphthalein) test, which has ranged from 28 to 34 per cent for over two years? I have 3 such patients, without any other symptoms, and would appreciate advice.

Louis L. Sherman, M.D., Oakland, Calif.

ANSWER.—The reason for the low threshold of renal function should be determined. Is concentrated fresh urine negative for protein and sediment abnormality? Has a blood urea or nonprotein nitrogen determination been made? Has a concentration test been performed? Is there any urologic lesion detectable by pyelography? Why was the phenolsulfonphthalein test done on these patients if they had no symptoms? Without the answers to these questions, advice on treatment would be of little or no value.

REACTIONS FOLLOWING PROCAINE USED INTRAVENOUSLY

To the Editor:—In Queries and Minor Notes, April 29, page 1397, Dr. Bowen Swinny of San Antonio, Texas, requested information on any reports of anaphylactic deaths from intravenous use of procaine. The answer did not cite any deaths but listed only the reactions resulting from its use. Apparently the report by M. L. Gelfand, N. H. Mufson and W. P. Richman, "Death in a Case of Bronchial Asthma Treated Successively with Intravenous Procaine and Sodium Amytal" (*New York State J. Med.* 49:2841 [Dec. 1] 1949) was not included. This is the only report which I have been able to find in the literature of death on use of intravenous procaine. They used procaine hydrochloride 0.2 per cent; the solution used for most intravenous infusions is 0.1 per cent.

Bernard T. Fein, M.D., Pittsburgh.

NOTE:—The answer to which Dr. Fein refers was prepared prior to publication of the article in the *New York State Journal of Medicine* on Dec. 1, 1949.—Ed.

PAROXYSMAL TACHYCARDIA

To the Editor:—For four weeks I have been treating a woman aged 53 who has paroxysmal tachycardia. Her disease started fifteen years ago. She was treated with all common drugs, finally she was given two quinidine sulfate tablets 0.2 Gm. three times a day. In spite of the continuous dosage, about once a week she had attacks that lasted four to six hours. During these attacks she took four quinidine tablets every two hours, up to twelve tablets within four hours. That was the only way to relieve the tachycardia. Lately the attacks have become more frequent and severe, occur almost daily and are difficult to stop. She was in the hospital five years ago and one year ago. The roentgenogram of the chest showed a moderately enlarged heart; the electrocardiograms were not contributory to exact diagnosis. The basal metabolic rate, complete blood count and results of urinalysis were within normal limits. The last menstrual period was about one year ago. The menopause obviously had no influence on the tachycardia. Any help in relieving this patient from her severe subjective discomfort will be greatly appreciated.

Oskar Ury, M.D., San Francisco.

ANSWER.—It is difficult to outline the treatment for the attacks of paroxysmal tachycardia in this particular case, since no information is given about the ventricular rate during the attacks, its regularity or irregularity, and no electrocardiogram taken during and between attacks is available for inspection. Furthermore, nothing is stated about precipitating factors and the effect of carotid sinus pressure on the ectopic rhythm. Before changing the therapy an attempt should be made to arrive at a precise diagnosis of the cardiac irregularity. One should rule out paroxysmal auricular fibrillation and flutter. If paroxysmal tachycardia is found to be the underlying mechanism, one should determine—if possible—whether the tachycardia is of supraventricular (auricular or auriculoventricular nodal) or ventricular origin.

If a diagnosis of ventricular paroxysmal tachycardia is established quinidine therapy should be continued. However, the drug should be given more often (every six hours) and the individual doses increased (by 0.2 Gm. every week) until the recurrences of the attacks are prevented or until toxic symptoms prevent further increase of the quinidine dosage. If auricular fibrillation, auricular flutter or supraventricular paroxysmal tachycardia are found to be responsible for the attacks of rapid heart action, the patient should be fully digitalized and kept on a maintenance dose of digitalis.

SORE TONGUE

To the Editor:—Three patients have had sore tongues for three years. The tongue is slightly swollen, feels stiff, is dark red, has deep grooves and is tender along the edges and tip. The surfaces are not raw. Eating is painful. They have had thiamine hydrochloride, nicotinic acid and dilute hydrochloric acid for several months with little effect. Their general health is good. What is the cause and treatment?

M.D., Missouri.

ANSWER.—The 3 cases cannot be considered together. The diagnosis would seem to be chronic glossitis, one of the foremost of tongue lesions, but there can literally be dozens of causes. No information is given concerning the gums, teeth, salivary glands, gastric acidity and dietary habits, all of which may be concerned. The most likely causes are regional infection, local irritation, gastrointestinal abnormality, vitamin deficiency and allergy. If most of these can be excluded by examination, or by removing the potential agent, one may use a multiple vitamin concentrate for a period of several months. Ascorbic acid (vitamin C) may be used, in addition to several vitamin B fractions. Nicotinic acid (niacin, 100 to 200 mg. per day orally) or nicotinamide (niacinamide, 50 to 100 mg. per day orally) has been used, but it might be necessary to use liver extract for a thorough trial.

RADIOACTIVE IODINE AND CORONARY INSUFFICIENCY

To the Editor:—Please let me know whether radioactive iodine, manufactured by Argonne National Laboratory, Chicago, has proved an efficient treatment for anginal heart conditions? What is considered the most efficient medication for an arteriosclerotic patient?

C. B. Greear, M.D., Honaker, Va.

ANSWER.—Without doubt radioactive iodine carefully administered can be of benefit to certain persons with obstinate, severe and frequently recurrent coronary insufficiency. However, this applies to only a small minority of patients who have coronary heart disease because of the natural great variability in the course of that condition. It is of great importance to establish an adequate control period on other therapy or no treatment at all prior to the administration of irradiated iodine. For the technic and results in the first important series of cases so treated, reference should be made to the pioneer work of Drs. Blumgart, Freedberg and Kurland already published in *Circulation* (1:1105 [May] 1950).